TOSHIBA
Satellite 5200 Series
Portable Personal Computer
User's Manual

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First edition August 2002

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Manufactured by TOSHIBA under license from Dolby Laboratories. Dolby and the double-D symbol are trademarks of Dolby Laboratories.

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FCC information

Product Name : *Satellite 5200*

Model number : *PS520*

FCC notice "Declaration of Conformity Information"

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: *Only peripherals complying with the FCC class B limits may be attached to this equipment. Operation with non-compliant peripherals or peripherals not recommended by TOSHIBA is likely to result in interference to radio and TV reception. Shielded cables must be used between the external devices and the computer's external monitor port, USB port, IEEE1394 port and microphone jack. Changes or modifications made to this equipment, not expressly approved by TOSHIBA or parties authorized by TOSHIBA could void the user's authority to operate the equipment.*

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Contact

Address: TOSHIBA America Information Systems, Inc.
9740 Irvine Boulevard
Irvine, California 92618-1697

Telephone: (949) 583-3000

CE

EU Declaration of Conformity

TOSHIBA declares, that the product: PS520* conforms to the following Standards:

Supplementary Information: "The product complies with the requirements of the Low Voltage Directive 73/23/EEC, the EMC Directive 89/336/EEC and/or the R&TTE Directive 1999/05/EEC."

This product is carrying the CE-Mark in accordance with the related European Directives. Responsible for CE-Marking is TOSHIBA Europe, Hammfelddamm 8, 41460 Neuss, Germany.

VCCI Class B Information

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Modem warning notice

Conformity Statement

The equipment has been approved to [Commission Decision "CTR21"] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN).

However, due to differences between the individual PSTNs provided in different countries/regions the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

Network Compatibility Statement

This product is designed to work with, and is compatible with the following networks. It has been tested to and found to conform with the additional requirements conditional in EG 201 121.

Germany	ATAAB AN005,AN006,AN007,AN009,AN010 and DE03,04,05,08,09,12,14,17
Greece	ATAAB AN005,AN006 and GR01,02,03,04
Portugal	ATAAB AN001,005,006,007,011 and P03,04,08,10
Spain	ATAAB AN005,007,012, and ES01
Switzerland	ATAAB AN002
All other countries/regions	ATAAB AN003,004

Specific switch settings or software setup are required for each network, please refer to the relevant sections of the user guide for more details.

The hookflash (timed break register recall) function is subject to separate national type approvals. It has not been tested for conformity to national type regulations, and no guarantee of successful operation of that specific function on specific national networks can be given.

Japan regulations

Region selection

If you are using the computer in Japan, technical regulations described in the Telecommunications Business Law require that you select the Japan region mode. It is illegal to use the modem in Japan with any other selection.

Redial

Up to two redial attempts can be made. If more than two redial attempts are made, the modem will return **`Black Listed`**. If you are experiencing problems with the Black Listed code, set the interval between redials at one minute or longer.

Japan's Telecommunications Business Law permits up to two redials on analogue telephones, but the redials must be made within a total of three minutes.

The internal modem is approved by Japan Approvals Institute for Telecommunications Equipment.

A00-0940JP

Pursuant to FCC CFR 47, Part 68:

When you are ready to install or use the modem, call your local telephone company and give them the following information:

- The telephone number of the line to which you will connect the modem
- The registration number that is located on the device

The FCC registration number of the modem will be found on either the device which is to be installed, or, if already installed, on the bottom of the computer outside of the main system label.

- The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your modem's label.

The modem connects to the telephone line by means of a standard jack called the USOC RJ11C.

Type of service

Your modem is designed to be used on standard-device telephone lines. Connection to telephone company-provided coin service (central office implemented systems) is prohibited. Connection to party lines service is subject to state tariffs. If you have any questions about your telephone line, such as how many pieces of equipment you can connect to it, the telephone company will provide this information upon request.

Telephone company procedures

The goal of the telephone company is to provide you with the best service it can. In order to do this, it may occasionally be necessary for them to make changes in their equipment, operations, or procedures. If these changes might affect your service or the operation of your equipment, the telephone company will give you notice in writing to allow you to make any changes necessary to maintain uninterrupted service.

If problems arise

If any of your telephone equipment is not operating properly, you should immediately remove it from your telephone line, as it may cause harm to the telephone network. If the telephone company notes a problem, they may temporarily discontinue service. When practical, they will notify you in advance of this disconnection. If advance notice is not feasible, you will be notified as soon as possible. When you are notified, you will be given the opportunity to correct the problem and informed of your right to file a complaint with the FCC. In the event repairs are ever needed on your modem, they should be performed by TOSHIBA Corporation or an authorized representative of TOSHIBA Corporation.

Disconnection

If you should ever decide to permanently disconnect your modem from its present line, please call the telephone company and let them know of this change.

Fax branding

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity or individual sending the message and the telephone number of the sending machine or such business, other entity or individual. In order to program this information into your fax modem, you should complete the setup of your fax software before sending messages.

Instructions for IC CS-03 certified equipment

1 The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection.

The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

> ***CAUTION:*** *Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.*

2 The user manual of analog equipment must contain the equipment's Ringer Equivalence Number (REN) and an explanation notice similar to the following:

The Ringer Equivalence Number (REN) of the modem, which can vary. For the REN of your modem, refer to your modem's label.

NOTICE: *The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.*

3 The standard connecting arrangement (telephone jack type) for this equipment is jack type(s): USOC RJ11C.

The IC registration number of the modem is shown below.

Canada: 1353 11026A

Notes for Users in Australia and New Zealand

Modem warning notice for Australia

Modems connected to the Australian telecoms network must have a valid Austel permit. This modem has been designed to specifically configure to ensure compliance with Austel standards when the country/region selection is set to Australia. The use of other country/region setting while the modem is attached to the Australian PSTN would result in you modem being operated in a non-compliant manner. To verify that the country/region is correctly set, enter the command ATI which displays the currently active setting.

To set the country/region permanently to Australia, enter the following command sequence:

```
AT%TE=1
ATS133=1
AT&F
AT&W
AT%TE=0
ATZ
```

Failure to set the modem to the Australia country/region setting as shown above will result in the modem being operated in a non-compliant manner. Consequently, there would be no permit in force for this equipment and the Telecoms Act 1991 prescribes a penalty of $12,000 for the connection of non-permitted equipment.

Notes for use of this device in New Zealand

- The grant of a Telepermit for a device in no way indicates Telecom acceptance of responsibility for the correct operation of that device under all operating conditions. In particular the higher speeds at which this modem is capable of operating depend on a specific network implementation which is only one of many ways of delivering high quality voice telephony to customers. Failure to operate should not be reported as a fault to Telecom.
- In addition to satisfactory line conditions a modem can only work properly if:

  a/ it is compatible with the modem at the other end of the call and

  b/ the application using the modem is compatible with the application at the other end of the call - e.g., accessing the Internet requires suitable software in addition to a modem.
- This equipment shall not be used in any manner which could constitute a nuisance to other Telecom customers.
- Some parameters required for compliance with Telecom's PTC Specifications are dependent on the equipment (PC) associated with this modem. The associated equipment shall be set to operate within the following limits for compliance with Telecom Specifications:

  a/ There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation, and

  b/ The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next.

  c/ Automatic calls to different numbers shall be not less than 5 seconds apart.
- Immediately disconnect this equipment should it become physically damaged, and arrange for its disposal or repair.
- The correct settings for use with this modem in New Zealand are as follows:

  ATB0 (CCITT operation)

  AT&G2 (1800 Hz guard tone)

  AT&P1 (Decadic dialing make-break ratio =33%/67%)

  ATS0=0 (not auto answer)

  ATS6=4 (Blind dial delay)

  ATS7=less than 90 (Time to wait to carrier after dialing)

  ATS10=less than 150 (loss of carrier to hangup delay, factory default of 15 recommended)

ATS11=90 (DTMF dialing on/off duration=90 ms)

ATX2 (Dial tone detect, but not (U.S.A.) call progress detect)

- When used in the Auto Answer mode, the S0 register must be set with a value of 3 or 4. This ensures:

  (a) a person calling your modem will hear a short burst of ringing before the modem answers. This confirms that the call has been successfully switched through the network.

  (b) caller identification information (which occurs between the first and second ring cadences) is not destroyed.

- The preferred method of dialing is to use DTMF tones (ATDT...) as this is faster and more reliable than pulse (decadic) dialing. If for some reason you must use decadic dialing, your communications program must be set up to record numbers using the following translation table as this modem does not implement the New Zealand "Reverse Dialing" standard.

  Number to be dialed: 0 1 2 3 4 5 6 7 8 9

  Number to program into computer: 0 9 8 7 6 5 4 3 2 1

  Note that where DTMF dialing is used, the numbers should be entered normally.

- The transmit level from this device is set at a fixed level and because of this there may be circumstances where the performance is less than optimal. Before reporting such occurrences as faults, please check the line with a standard Telepermitted telephone, and only report a fault if the phone performance is impaired.

- It is recommended that this equipment be disconnected from the Telecom line during electrical storms.

- When relocating the equipment, always disconnect the Telecom line connection before the power connection, and reconnect the power first.

- This equipment may not be compatible with Telecom Distinctive Alert cadences and services such as FaxAbility.

NOTE THAT FAULT CALL OUTS CAUSED BY ANY OF THE ABOVE CAUSES MAY INCUR A CHARGE FROM TELECOM

General conditions

As required by PTC 100, please ensure that this office is advised of any changes to the specifications of these products which might affect compliance with the relevant PTC Specifications.

The grant of this Telepermit is specific to the above products with the marketing description as stated on the Telepermit label artwork. The Telepermit may not be assigned to other parties or other products without Telecom approval.

A Telepermit artwork for each device is included from which you may prepare any number of Telepermit labels subject to the general instructions on format, size and colour on the attached sheet.

The Telepermit label must be displayed on the product at all times as proof to purchasers and service personnel that the product is able to be legitimately connected to the Telecom network.

The Telepermit label may also be shown on the packaging of the product and in the sales literature, as required in PTC 100.

The charge for a Telepermit assessment is $337.50. An additional charge of $337.50 is payable where an assessment is based on reports against non-Telecom New Zealand Specifications. $112.50 is charged for each variation when submitted at the same time as the original.

An invoice for $NZ1237.50 will be sent under separate cover.

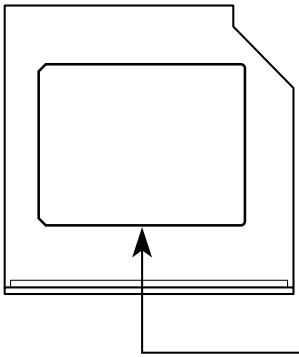
Matsushita CD-RW/DVD-ROM drive UJDA740 safety instruction

CAUTIONS: 1. *The CD-RW/DVD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.*

2. *Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.*

3. *To prevent direct exposure to the laser beam, do not try to open the enclosure.*

Location of the required label

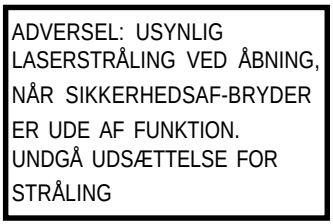


COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J. 130KMT
Manufactured by Kyushu Matsushita Electric Co., Ltd. 1-62, 4-Chome Minoshima Hakata-Ku Fukuoka, Japan

CLASS 1 LASER PRODUCT
LASER KLASSE 1

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORIZED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

VORSICHT*: Dieses Gerät enthält ein Laser-System und ist als "LASERSCHUTZKLASSE 1 PRODUKT" klassifiziert. Für den richtigen Gebrauch dieses Modells lesen Sie bitte die Bedienungsanleitung sorgfältig durch und bewahren diese bitte als Referenz auf. Falls Probleme mit diesem Modell auftreten, benachrichtigen Sie bitte die nächste "autorisierte Service-Vertretung". Um einen direkten Kontakt mit dem Laserstrahl zu vermeiden darf das Gerät nicht geöffnet werden.*



ADVARSEL: *Denne mærking er anbragt udvendigt på apparatet og indikerer, at apparatet arbejder med laserstråler af klasse 1, hviket betyder, at der anvendes laserstrlier af svageste klasse, og at man ikke på apparatets yderside kan bilve udsat for utilladellg kraftig stråling.*

APPARATET BOR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmækning, som advarer imod at foretage sådanne indgreb i apparatet, at man kan komme til at udsætte sig for laserstråling.

OBS! *Apparaten innehåller laserkomponent som avger laserstråining överstigande gränsen för laserklass 1.*

VAROITUS. *Suojakoteloa si saa avata. Laite sisältää laserdiodin, joka lähetää näkymätöntä silmilie vaarallista lasersäteilyä.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

VORSICHT: *DIE VERWENDUNG VON ANDEREN STEURUNGEN ODER EINSTELLUNGEN ODER DAS DURCHFÜHREN VON ANDEREN VORGÄNGEN ALS IN DER BEDIENUNGSANLEITUNG BESCHRIEBEN KÖNNEN GEFÄHRLICHE STRAHLENEXPOSITIONEN ZUR FOLGE HABEN.*

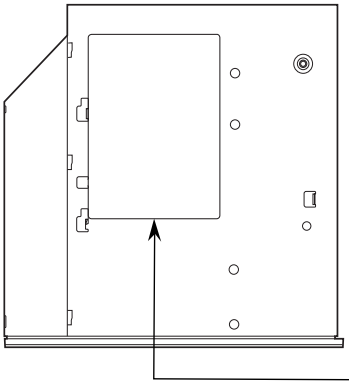
TEAC CD-RW/DVD-ROM drive DW-224E safety instruction

CAUTIONS: 1. *The CD-RW/DVD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.*

2. *Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.*

3. *To prevent direct exposure to the laser beam, do not try to open the enclosure.*

Location of the required label



THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR CHAPTER 1, SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

MANUFACTURED:

Manufactured by
TEAC Corporation
3-7-3 Naka-cho, Musashino-shi,
Tokyo, Japan

CLASS 1 LASER PRODUCT
APPAREIL Å LASER DE
CLASSE 1
LASER KLASSE 1 PRODUKT
TO EN 60825-1
クラス 1 レーザー製品

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "AUTHORIZED service station." To prevent direct exposure to the laser beam, do not try to open the enclosure.*

CLASS 1 LASER PRODUCT
LASERSCHUTZKLASSE 1
PRODUKT
TO EN60825

VORSICHT*: Dieses Gerät enthält ein Laser-System und ist als "LASERSCHUTZKLASSE 1 PRODUKT" klassifiziert. Für den richtigen Gebrauch dieses Modells lesen Sie bitte die Bedienungsanleitung sorgfältig durch und bewahren diese bitte als Referenz auf. Falls Probleme mit diesem Modell auftreten, benachrichtigen Sie bitte die nächste "autorisierte Service-Vertretung". Um einen direkten Kontakt mit dem Laserstrahl zu vermeiden darf das Gerät nicht geöffnet werden.*

ADVERSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDER ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING

ADVARSEL: *Denne mærking er anbragt udvendigt på apparatet og indikerer, at apparatet arbejder med laserstråler af klasse 1, hviket betyder, at der anvendes laserstrlier af svageste klasse, og at man ikke på apparatets yderside kan bilve udsat for utilladellg kraftig stråling.*

APPARATET BOR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

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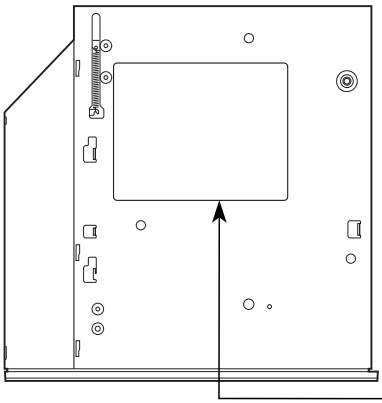
TEAC DVD-ROM drive DV-28E safety instruction

CAUTIONS: 1. *The DVD-ROM drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.*

2. *Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.*

3. *To prevent direct exposure to the laser beam, do not try to open the enclosure.*

Location of the required label



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APPAREIL Å LASER DE CLASSE 1
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TO EN 60825-1
クラス 1 レーザー製品

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LASERSCHUTZKLASSE 1 PRODUKT
TO EN60825

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Glossary

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Preface

Congratulations on your purchase of the Satellite 5200 series computer. This powerful notebook computer provides excellent expansion capability, including multimedia devices, and it is designed to provide years of reliable, high-performance computing.

This manual tells how to set up and begin using your Satellite 5200 series computer. It also provides detailed information on configuring your computer, basic operations and care, using optional devices and troubleshooting.

If you are a new user of computers or if you're new to portable computing, first read over the *Introduction* and *The Grand Tour* chapters to familiarize yourself with the computer's features, components and accessory devices. Then read *Getting Started* for step-by-step instructions on setting up your computer.

If you are an experienced computer user, please continue reading the preface to learn how this manual is organized, then become acquainted with this manual by browsing through its pages. Be sure to look over the *Special features* section of the *Introduction,* to learn about features that are uncommon or unique to the computers and carefully read *HW Setup and Passwords*.

Manual contents

This manual is composed of nine chapters, eight appendixes, a glossary, and an index.

Chapter 1, *Introduction,* is an overview of the computer's features, capabilities, and options.

Chapter 2, *The Grand Tour*, identifies the components of the computer and briefly explains how they function.

Chapter 3, *Getting Started,* provides a quick overview of how to begin operating your computer and gives tips on safety and designing your work area.

Chapter 4, *Operating Basics*, includes instructions on using the following devices: cPad, TouchPad, TOSHIBA Style Bay modules, USB diskette drive, optical media drives, Sub LCD, Audio/video controls, microphone, modem, Wireless communication features, LAN and TOSHIBA Remote Control. It also provides tips on care of the computer, diskettes and CD/DVDs.

Chapter 5, *The Keyboard*, describes special keyboard functions including the keypad overlay and hotkeys.

Chapter 6, *Power and Power-Up Modes*, gives details on the computer's power resources and battery save modes.

Chapter 7, *HW Setup and Passwords*, explains how to configure the computer using the HW Setup program. It also tells how to set a password.

Chapter 8, *Optional Devices*, describes the optional hardware available.

Chapter 9, *Troubleshooting*, suggests courses of action if the computer doesn't seem to be working properly.

The Appendixes provide technical information about your computer.

The Glossary defines general computer terminology and includes a list of acronyms used in the text.

The Index quickly directs you to the information contained in this manual.

Conventions

This manual uses the following formats to describe, identify, and highlight terms and operating procedures.

Abbreviations

On first appearance, and whenever necessary for clarity, abbreviations are enclosed in parentheses following their definition. For example: Read Only Memory (ROM). Acronyms are also defined in the Glossary.

Icons

Icons identify ports, dials, and other parts of your computer. The indicator panel also uses icons to identify the components it is providing information on.

Keys

The keyboard keys are used in the text to describe many computer operations. A distinctive typeface identifies the key top symbols as they appear on the keyboard. For example, **Enter** identifies the Enter key.

Key operation

Some operations require you to simultaneously use two or more keys. We identify such operations by the key top symbols separated by a plus sign (+). For example, **Ctrl + C** means you must hold down **Ctrl** and at the same time press **C**. If three keys are used, hold down the first two and at the same time press the third.

ABC When procedures require an action such as clicking an icon or entering text, the icon's name or the text you are to type in is represented in the type face you see to the left.

Display

ABC Names of windows or icons or text generated by the computer that appears on its display screen is presented in the type face you see to the left.

Messages

Messages are used in this manual to bring important information to your attention. Each type of message is identified as shown below.

> ***CAUTION:*** *Pay attention! A caution informs you that improper use of equipment or failure to follow instructions may cause data loss or damage your equipment.*

> ***NOTE:*** *Please read. A note is a hint or advice that helps you make best use of your equipment.*

General Precautions

TOSHIBA computers are designed to optimize safety, minimize strain and withstand the rigors of portability. However, certain precautions should be observed to further reduce the risk of personal injury or damage to the computer.

Be certain to read the general precautions below and to note the cautions included in the text of the manual.

Stress injury

Carefully read the *Instruction Manual for Safety & Comfort*. It contains information on prevention of stress injuries to your hands and wrists than can be caused by extensive keyboard use. Chapter 3, *Getting Started*, also includes information on work space design, posture and lighting that can help reduce physical stress.

Heat injury

- Avoid prolonged physical contact with the computer. If the computer is used for long periods, its surface can become very warm. While the temperature will not feel hot to the touch, if you maintain physical contact with the computer for a long time (if you rest the computer on your lap, or if you keep your hands on the palm rest, for example) your skin might suffer low-heat injury.
- If the computer has been used for a long time, avoid direct contact with the metal plate supporting the I/O ports. It can become hot.
- The surface of the AC adaptor can become hot when in use. This condition does not indicate a malfunction. If you need to transport the AC adaptor, disconnect it and let it cool before moving it.
- Do not lay the AC adaptor on a material that is sensitive to heat. The material could be damaged.

Pressure or impact damage

Do not apply heavy pressure to the computer or subject it to strong impact. Excessive pressure or impact can cause damage to computer components or otherwise cause malfunctions.

PC card overheating

Some PC cards can become hot with prolonged use. Overheating of a PC card can result in errors or instability in the PC card operation. Also be careful when you remove a PC card that has been used for a long time.

Chapter 1

Introduction

This chapter provides an equipment checklist, and it identifies the computer's features, options and accessories.

> ***CAUTION:*** *Some of the features described in this manual may not function properly if you use an operating system that was not preinstalled by TOSHIBA.*

Equipment checklist

Carefully unpack your computer. Save the box and packing materials for future use.

Hardware

Check to make sure you have all the following items:

- Satellite 5200 Series Portable Personal Computer
- Universal AC adaptor and power cord
- USB diskette drive (Provided with some models)
- Modular cable
- TV adaptor cable
- TOSHIBA Remote Control (Provided with some models)
- Lithium CR2025 battery (Provided only with TOSHIBA Remote Control models)
- TOSHIBA Style Bay weight saver module

Software

- The following software is preinstalled:
  - Microsoft® Windows XP Home Edition/Professional
  - Microsoft Internet Explorer
  - Modem driver
  - Display Drivers for Windows
  - TOSHIBA Utilities
  - Wireless LAN driver

- Bluetooth driver
- Sound Driver for Windows
- DVD Video Player
- LAN Drivers
- Infrared Device Driver
- Online manual

◆ Product Recovery CD-ROM

Documentation

- *Satellite 5200 series Portable Personal Computer User's Manual*
- Microsoft Windows XP manual package
- *Instruction Manual for Safety & Comfort*
- End User License Agreement

Features

The computer uses TOSHIBA's advanced Large Scale Integration (LSI), Complementary Metal-Oxide Semiconductor (CMOS) technology extensively to provide compact size, minimum weight, low power usage, and high reliability. This computer incorporates the following features and benefits:

Processor

Built-in — The computer is equipped with an Intel® processor, which incorporates a math co-processor, a 20 KB level 1 cache memory and a 512 KB level 2 cache memory. It also supports Enhanced Intel® SpeedStep™ technology.

1.70 GHz Mobile Intel® Pentium® 4 processor 1.70 GHz - M
1.80 GHz Mobile Intel® Pentium® 4 processor 1.80 GHz - M
1.90 GHz Mobile Intel® Pentium® 4 processor 1.90 GHz - M
2.00 GHz Mobile Intel® Pentium® 4 processor 2.00 GHz - M

Memory

Slots — 256 or 512 MB memory modules can be installed in the two memory slots for a maximum of 1 GB system memory.

Video RAM — 32 or 64 MB of RAM is provided for video display.

Power

Battery pack	The computer is powered by one rechargeable lithium-ion battery pack.
RTC battery	The computer has an internal battery to back up the internal Real Time Clock (RTC) and calendar.
AC adaptor	The universal AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord. Because it is universal, it can receive a range of AC voltage from 100 to 240 volts; however, the output current varies among different models. Using the wrong model can damage your computer. See the AC adaptor section in Chapter 2, *The Grand Tour*.

Disks

Fixed hard disk	Available in two sizes. • 37.26 GB (40.0 billion bytes) • 55.89 GB (60.0 billion bytes)
USB diskette drive	Accommodates either 3 1/2" 1.44-megabyte or 720-kilobyte diskettes. It connects to a USB port.

NOTE: *Computers in this series can be configured with two optical media drives. One fixed drive is standard, and an addtional drive can be installed in the TOSHIBA Style Bay. The available optical media drives are described below.*

DVD-ROM drive	Some models are equipped with a full-size, DVD-ROM drive module that lets you run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without using an adaptor. It runs DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. A Mode Control button turns power to the fixed DVD-ROM drive on and off so you can use the drive as a stand-alone audio CD player. See Chapter 4, *Operating Basics*, for details. The drive supports the following formats: • DVD-ROM • DVD-Video • CD-DA • CD-Text • Photo CD™ (single/multi-session)

- CD-ROM Mode 1, Mode 2
- CD-ROM XA Mode 2 (Form1, Form2)
- Enhanced CD (CD-EXTRA)
- CD-G (Audio CD only)
- Addressing Method 2

CD-RW/DVD-ROM drive — Some models are equipped with a full-size, CD-RW/DVD-ROM drive module that lets you run CD/DVDs without using an adaptor. It reads DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. It writes CD-R at up to 24 speed and CD-RW at up to 10 speed. A Mode Control button turns power to the fixed CD-RW/DVD-ROM drive on and off so you can use the drive as a stand-alone audio CD player. See Chapter 4, *Operating Basics*, for details. For reading, this drive supports the same formats as the DVD-ROM drive.

Display

The computer's LCD panel supports high-resolution video graphics. The screen can be set at a wide range of viewing angles for maximum comfort and readability.

Built-in — 15.0" TFT screen, 16 M colors, with one of the following resolutions:

- XGA, 1024 horizontal x 768 vertical pixels
- SXGA+, 1400 horizontal x 1050 vertical pixels
- UXGA, 1600 horizontal x 1200 vertical pixels

Graphics controller — A 128-bit graphics controller maximizes display performance. Refer to Appendix B for more information.

Keyboard

Built-in — 85 keys or 86 keys, compatible with IBM enhanced keyboard, embedded numeric overlay, dedicated cursor control, and keys. See Chapter 5, *The Keyboard*, for details.

Pointing devices

cPad — In some models a cPad and control buttons in the palm rest enable control of the on-screen pointer and scrolling of windows.

TouchPad	In some models a TouchPad and control buttons in the palm rest enable control of the on-screen pointer and scrolling of windows.

Ports

External monitor	15-pin, analog VGA port supports VESA DDC2B compatible functions.
Universal Serial Bus (USB 2.0)	The computer has three Universal Serial Bus ports that comply with the USB 2.0 standard, which enables data transfer speeds 40 times faster than the USB 1.1 standard. (The ports also support USB 1.1.)
i.LINK™ (IEEE1394)	This port enables high-speed data transfer directly from external devices such as digital video cameras.
Infrared	The serial infrared port is compatible with Infrared Data Association (IrDA 1.1) standards. It enables cableless 4 Mbps, 1.152 Mbps, 115.2 kbps, 57.6 kbps, 38.4 kbps, 19.2 kbps or 9.6 kbps data transfer with IrDA 1.1 compatible external devices.

Slots

PC card	The PC card slot accommodates one 5 mm Type II card.
SD card	This slot lets you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use SD card flash-memory.

Multimedia

Sound system	It incorporates a Wave Table Synthesizer for advanced sound applications including 3D games, DVD movie playback and internet communications. The sound system supports S/PDIF, which can be output to a multi-channel speaker or amplifier system for DVD playback. Even without external devices, dynamic sound is generated by the internal speakers.
Video-out and Line-out jack	This jack lets you transfer video and sound data to external devices. Use the TV adaptor cable for both video-out and line-out. Data output depends on the type of device connected to the TV adaptor cable.

TV button	Press this button to set your display device to TV (Video-out). Press it again to return to the LCD.
Mode Control button	This button directly launches various CD, DVD and Digital Audio functions. Refer to Chapter 4, *Operating Basics*, for details.
Audio/Video control buttons	Audio/Video control buttons let you use the computer's fixed optical media drive as a stand-alone audio CD player. You can also use the buttons to control the computer's DVD video player and TOSHIBA Media player when the system is on.
S/PDIF and Headphone jack	Sony/Phillips Digital Interface Format connection maintains audio signals in a digital format until it is converted to analog for speaker output. If standard headphones are connected, the output is analog.
Microphone jack	A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.
Line-in jack	A standard 3.5 mm mini line-in jack enables connection of a stereo device for audio input.

Communications

Modem	An internal modem provides capability for data and fax communication. It supports V.90. Refer to *Appendix E*. The speed of data transfer and fax depends on analog telephone line conditions. It has a modem jack for connecting to a telephone line.
LAN	The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx).
Bluetooth	Some computers in this series are equipped with Bluetooth functions. Bluetooth wireless technology eliminates the need for cables between electronic devices such as computers and printers. Bluetooth provides fast, reliable, and secure wireless communication in a small space.

Wireless LAN	Some computers in this series are equipped with a wireless LAN mini-PCI card that is compatible with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with the IEEE 802.11 Standard (Revision B). It supports data transfer up to 11 Mbit/s. It has Frequency Channel Selection (2.4 GHz) and allows roaming over multiple channels.

TOSHIBA Style Bay

Modules	TOSHIBA Style Bay is a single-drive bay that accommodates a DVD-ROM drive, CD-RW/DVD-ROM drive, TOSHIBA Style Bay HDD adaptor, TOSHIBA Style Bay 2nd battery pack or Bridge media (for Memory Stick®/ Smart Media/Compact Flash™ memory) adaptor. TheTOSHIBA Mobile Extension enables hot docking of modules when you are using a plug and play operating system.

Security

Security lock slot	Connects an optional security lock to anchor the computer to a desk or other large object

Software

Standard	Windows XP operating system and TOSHIBA Utilities and drivers preinstalled on the hard disk.
Plug and Play	When you connect an external device to the computer, Plug and Play capability enables the system to recognize the connection and make the necessary configurations automatically.

Special features

The following features are either unique to TOSHIBA computers or are advanced features, which make the computer more convenient to use.

Internet button	Press this button to launch an Internet browser. See Chapter 2, *Grand Tour*, for details.
TOSHIBA Console button	Press this button to launch an application automatically. The default is TOSHIBA Console.

Hotkeys	Key combinations let you quickly modify the system configuration directly from the keyboard without running a system configuration program.
Display automatic power off	This feature automatically cuts off power to the internal display when there is no input from the keyboard or pointing device for a time specified. Power is restored when any key is pressed or when there is input from a pointing device. You can specify the time in the *Turn off monitor* item of the *Power Save Mode* window in TOSHIBA Power Saver.
HDD automatic power off	This feature automatically cuts off power to the hard disk drive when it is not accessed for a time specified. Power is restored when the hard disk is accessed. You can specify the time in the *Turn off hard disks* item of the *Power Save Mode* window in TOSHIBA Power Saver.
System automatic Standby/Hibernation	This feature automatically shuts down the system in standby mode or Hibernation mode when there is no input or hardware access for a time specified. You can specify the time and select either System Standby or System Hibernate in the *System standby and System hibernate* item of the *Power Save Mode* window in TOSHIBA Power Saver.
Keypad overlay	A ten-key pad is integrated into the keyboard. Refer to the *Keypad overlay* section in Chapter 5, *Keyboard*, for instructions on using the keypad overlay.
Power on password	Two levels of password security, supervisor and user, are available to prevent unauthorized access to your computer.
Instant security	A hotkey function blanks the screen and disables the computer providing data security.
Intelligent power supply	A microprocessor in the computer's intelligent power supply detects the battery's charge and calculates the remaining battery capacity. It also protects electronic components from abnormal conditions, such as voltage overload from an AC adaptor. You can monitor remaining battery capacity. Use the *Battery remaining* item of the *Power Save Modes* window in TOSHIBA Power Saver.

Battery save mode	This feature lets you save battery power. You can specify the Power Save Mode in the *Running on batteries* item of the *Power Save Modes* window in TOSHIBA Power Saver.
Panel power off/on	This feature turns power to the computer off when the display panel is closed and turns it back on when the panel is opened. You can specify the setting in the *When I close the lid* item of the *System Power Mode* window in TOSHIBA Power Saver.
Low battery automatic hibernation	When battery power is exhausted to the point that computer operation cannot be continued, the system automatically enters Hibernation and shuts down. You can specify the setting in the *Battery Alarm* item of the *Alarm* window in TOSHIBA Power Saver.
Heat dispersal	The CPU has an internal temperature sensor that automatically activates cooling procedures. Refer to the *Heat dispersal* section in Chapter 4, *Operating Basics*, for details on setting the options for cooling methods.
Hibernation	This feature lets you turn off the power without exiting from your software. The contents of main memory is saved to the hard disk, when you turn on the power again, you can continue working right where you left off. Refer to the *Turning off the power* section in Chapter 3, *Getting Started*, for details.
Standby	If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. When you turn on the power again, you can continue working right where you left off.

Utilities

This section describes preinstalled utilities and tells how to start them. For details on operations, refer to each utility's online manual, help files or read.me files.

TOSHIBA Power Saver	To access this power savings management program, open the Control Panel and select the TOSHIBA Power Saver icon.

HW Setup	This program lets you customize your hardware settings according to the way you work with your computer and the peripherals you use. To start the utility, click the Windows Start button and click Control Panel. In the Control Panel, select the TOSHIBA HW Setup icon.
cPad utilities	The utilities greatly expands the functionality of the computer's built-in pointing device.
TOSHIBA Controls	This utility has four sections to let you do the following: • Buttons: Assign applications to the Internet button (default setting is the browser) and to the TOSHIBA Console button (default setting is the TOSHIBA Console). • Media Apps: Set the mode for the Audio/Video control buttons. Select the application for audio and video playback. • Sub LCD: Select the clock mode, 12-hour or 24-hour. Enter an owner text string for display on the Sub LCD. • TOSHIBA Remote Control: Enable/disable the TOSHIBA Remote Control function.
TOSHIBA Console	TOSHIBA Console is a graphical user interface that provides access to help and services. It is the default function launched by the TOSHIBA Console button.
Fn-esse	This Windows program lets you define your own "short-cut" keys to quickly launch applications and speed your work in Windows. To start the utility, click the Windows Start button, point to All Programs, point to TOSHIBA Utilities and click Fn-esse.
DVD Video Player	The DVD Video Player is used to play DVD-Video. It has an on-screen interface and functions. Click Start, point to All Programs, point to InterVideo WinDVD 4, then click InterVideo WinDVD 4.
Network Device Switch	The Network Device Switch enables quick and easy setup of Internet and network settings. The Network Device Switch manages profiles captured from the computer settings for each network that you use. When you select a profile, your network settings change. To access this utility click Start, point to All Programs and click Network Device Switch.

Bluetooth TOSHIBA Stack	This software enables communication between remote Bluetooth devices. Refer to the Quick Start Guide.
Drag'n Drop CD	This easy-to-use software lets you record CDs with just a few mouse clicks. You can create CDs in several formats including audio CDs that can be played on a standard stereo CD player and data CDs to store the files and folders on your hard drive. This software can be used only on model with CD-RW/DVD-ROM drive.
TOSHIBA Mobile Extension	This utility enables hot docking of TOSHIBA Style Bay modules (optical media drives or HDD adaptor). You can remove/install, TOSHIBA Style Bay modules while the computer is on. To activate the utility, select "TOSHIBA Mobile Extension" from TOSHIBA Console.

Options

You can add a number of options to make your computer even more powerful and convenient to use. The following options are available:

Memory expansion	A 256 or 512 MB memory module can easily be installed in the computer.
Battery pack	An additional battery pack can be purchased from your TOSHIBA dealer. Use it as a spare or replacement.
AC adaptor	If you use your computer at more than one site frequently, it may be convenient to purchase an additional AC adaptor for each site so you will not have to carry the adaptor with you.
Battery charger	The battery charger lets you charge extra batteries outside the computer.
Security lock	A slot is available to attach a security cable to the computer to deter theft.

TOSHIBA Style Bay options

The following modules can be installed in the TOSHIBA Style Bay. The user can select either a DVD-ROM drive, a CD-RW/DVD-ROM drive , a TOSHIBA Style Bay HDD adaptor, a TOSHIBA Style Bay 2nd battery pack or a Bridge media adaptor, to be preinstalled as a standard device. All other modules are options.

DVD-ROM	Refer to the *Features* section for details.
CD-RW/DVD-ROM	Refer to the *Features* section for details.
TOSHIBA Style Bay HDD adaptor	An adaptor lets you install an optional HDD described in Chapter 8, *Optional Devices*.
Hard disk drive	You can increase your computer's data storage capacity with an additional 60 billion bytes (55.89 GB) hard disk drive in the TOSHIBA Style Bay HDD adaptor.
TOSHIBA Style Bay 2nd battery pack	The secondary battery increases your computer's battery power and operating time when a main battery is also installed.
Bridge media adaptor	This adaptor lets you install an optional Bridge media (Memory Stick/Smart Media/Compact Flash memory) adaptor described in Chapter 8, *Optional Devices*.

The Grand Tour

This chapter identifies the various components of your computer. Become familiar with each component before you operate the computer.

Front with the display closed

Figure 2-1 shows the computer's front with its display panel in the closed position.

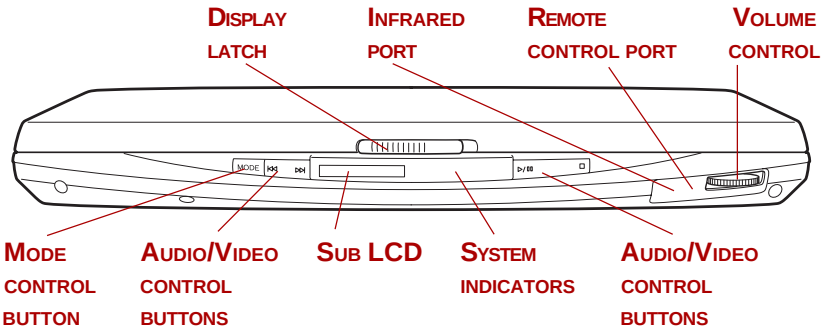


Figure 2-1 Front of the computer with display closed

Display latch This latch secures the LCD panel in its closed position. Slide the latch to open the display.

Infrared port This infrared port is compatible with Infrared Data Association (IrDA 1.1) standards. It enables cableless 4 Mbps, 1.15 Mbps, 115.2 kbps, 57.6 kbps, 38.4 kbps, 19.2 kbps or 9.6 kbps data transfer with IrDA 1.1 compatible external devices.

Remote Control port This port receives signals from the TOSHIBA Remote Control.

Volume control Use this dial to adjust the volume of the stereo speakers and subwoofer or the stereo headphones.

Mode Control button This button directly launches various CD, DVD and Digital Audio functions. Refer to Chapter 4, *Operating Basics*.

Audio/Video control buttons MODE

Previous |◀◀ button: Plays the previous track/chapter/data. Play/pause ▶/❚❚ button: Begins or pauses play. Stop ■ button: Halts play. Next ▶▶| button: Plays the next track/chapter/data. Refer to Chapter 4, *Operating Basics*.

NOTE: *If Random is selected in TOSHIBA Media Player, selecting Next or Previous advances to a random selection.*

Sub LCD The left side of the sub LCD displays the CD/Digital Audio icon. The center displays the status. The right side displays the battery charge level. Refer to Chapter 4, *Operating Basics*.

System indicators LEDs let you monitor the status of various computer functions. Details are given in the *Indicators* section.

Left side

Figure 2-2 shows the computer's left side.

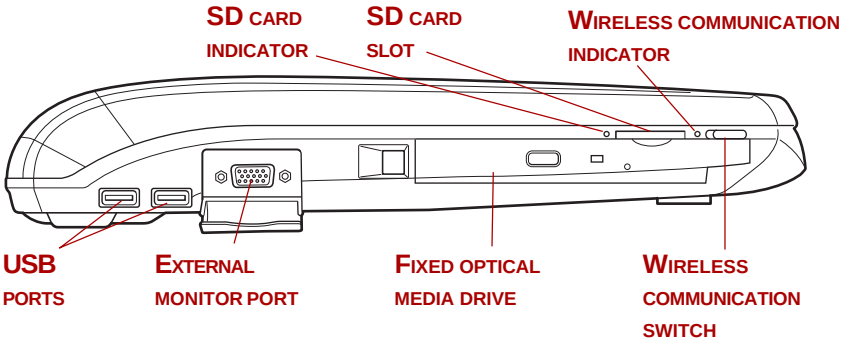


Figure 2-2 The left side of the computer

A single cover protects the external monitor.

SD card indicator This indicator glows green when the computer is accessing the SD card slot.

SD card slot SD cards are used in a wide variety of external devices. This slot lets you transfer data from the device to your computer. An indicator on the left side of the slot glows when a card is being accessed.

CAUTION: *Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.*

Wireless communication Indicator

This indicator glows orange when the Bluetooth and Wireless LAN functions are on (Wireless model or Wireless LAN ready model only).

Wireless communication switch

On Off

Slide this switch toward the front of the computer to turn off Wireless LAN and Bluetooth functions. Slide it toward the back of the computer to turn on the functions (Wireless model or Wireless LAN ready model only).

CAUTION: *Set the switch to off in airplanes and hospitals. Check the wireless communication indicator. It will stop glowing when the wireless communication function is off.*

Universal Serial Bus (USB 2.0) ports

Two Universal Serial Bus ports are on the left side. The ports comply with the USB 2.0 standard, which enables data transfer speeds 40 times faster than the USB 1.1 standard. (The ports also support USB 1.1.)

CAUTION: *Keep foreign objects out of the USB connectors. A pin or similar object can damage the computer's circuitry.*

NOTE: *Operation of all functions of all USB devices has not been confirmed. Some functions might not execute properly.*

External monitor port

This 15-pin port lets you connect an external video display.

Fixed optical media drive

See Chapter 4, *Operating Basics*, for information on using the drive and caring for CDs and DVDs.

DVD-ROM drive

Some models are equipped with a full-size DVD-ROM drive module lets you run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without using an adaptor.

CD-RW/DVD-ROM drive

Some models are equipped with a full-size, CD-RW/DVD-ROM drive module lets you run CD/DVDs. You can also write CDs.

Right side

Figure 2-3 shows the computer's right side.

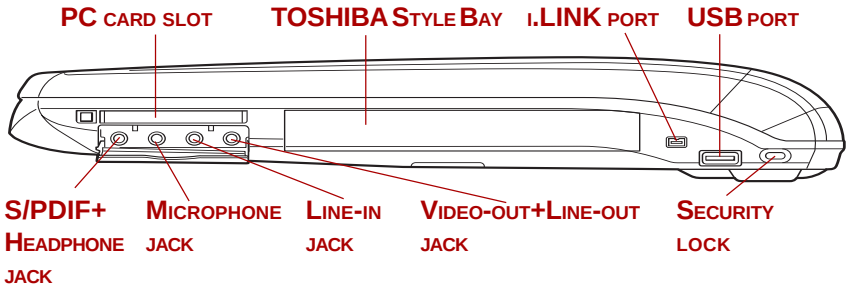


Figure 2-3 The right side of the computer

A single cover protects the S/PDIF and Headphone jack, Microphone jack, Line-in jack and Video-out and Line-out jack.

PC card slot

A PC card slot can accommodate one 5 mm PC card (Type II). You can install any industry standard PC card such as a SCSI adaptor, Ethernet adaptor or flash memory card.

CAUTION: *Keep foreign objects out of the PC card slot. A pin or similar object can damage the computer's circuitry.*

TOSHIBA Style Bay

A DVD-ROM drive, CD-RW/DVD-ROM drive, TOSHIBA Style Bay HDD adaptor, TOSHIBA Style Bay 2nd battery pack or Bridge media adaptor can be installed in the TOSHIBA Style Bay. A weight saver can be installed when there is no module.

i.LINK (IEEE1394) port

Connect an external device, such as a digital video camera to this port for high-speed data transfer.

Universal Serial Bus (USB 2.0) port

A third Universal Serial Bus (USB 2.0 compliant) port is on the right side. See *Universal Serial Ports* in the *Left side* section for details.

S/PDIF and Headphone jack

This jack lets you connect digital speakers or a stereo headphone (16 ohm minimum). When you connect a digital speaker or headphones, the internal speaker is automatically disabled.

Microphone jack

A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.

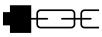
Line-in jack

A standard 3.5 mm mini line-in jack enables connection of a stereo device for audio input.

Video-out and Line-out jack

Plug a mini-jack TV adaptor cable into this jack for both line-out and video-out. The TV adaptor cable carries video as well as audio data for left and right speakers. Use the TV button to turn on and off the TV display.

Security lock



A security cable attaches to this slot. The optional security cable anchors your computer to a desk or other large object to deter theft.

Back side

Figure 2-4 shows the computer's back panel.

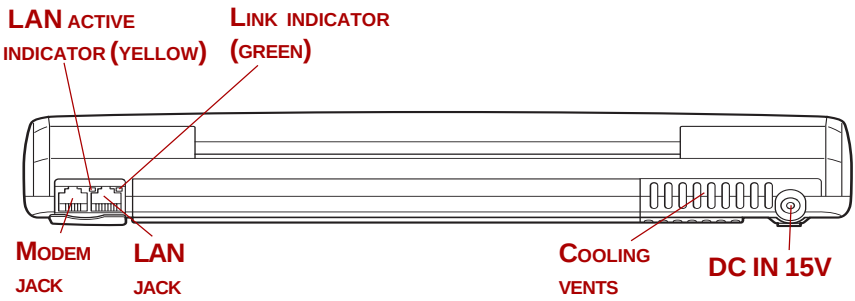


Figure 2-4 The back side of the computer

LAN jack

This jack lets you connect to a LAN. The adaptor has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx). The LAN has two indicators. See Chapter 4, *Operating Basics*, for details.

Link indicator (green)

This indicator glows green when the computer is connected to a LAN and the LAN is functioning properly.

LAN active indicator (yellow)

This indicator glows yellow when data is being exchanged between the computer and the LAN.

Modem jack

In areas where an internal modem is installed as standard equipment, there is a modem jack that lets you use a modular cable to connect the modem directly to a telephone line.

CAUTIONS: *1. In case of a lightning storm, unplug the modem cable from the telephone jack.*

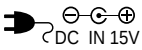
2. Do not connect the modem to a digital telephone line. A digital line will damage the modem.

Cooling vents

These vents provide an outlet for air pulled through the computer by the fan.

CAUTION: *Be careful not to block the cooling vents. Also be careful to keep foreign objects out of them. A pin or similar object can damage the computer's circuitry.*

DC IN 15V



The AC adaptor connects to this socket. Use only the model of AC adaptor that comes with the computer. Using the wrong adaptor can damage your computer.

Underside

Figure 2-5 shows the underside of the computer. Make sure the display is closed before turning over your computer.

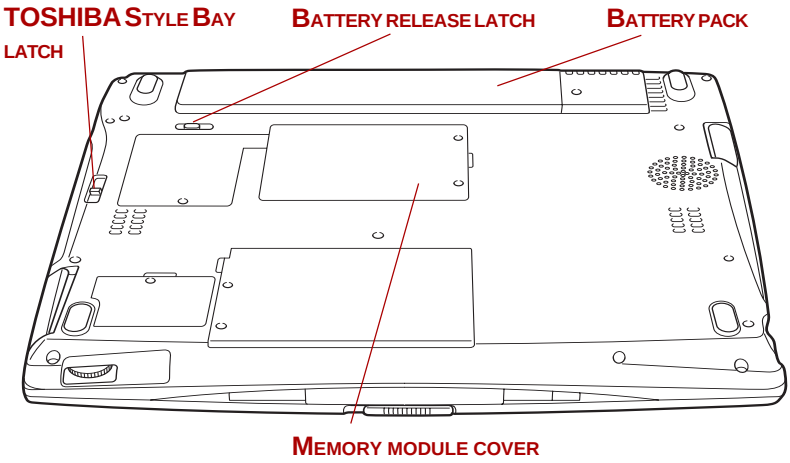


Figure 2-5 The underside of the computer

TOSHIBA Style Bay latch Slide this latch to free the TOSHIBA Style Bay for removal.

Battery pack The battery pack powers the computer when the AC adaptor is not connected. For detailed information on the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.

Battery release latch Slide this latch to release the battery pack for removal.

Memory module cover This cover protects two memory module sockets. One or two modules are preinstalled. Refer to the *Memory expansion* section in Chapter 8, *Optional Devices.*

Front with the display open

This section shows the cPad and TouchPad computers with the display open. Refer to the appropriate illustration for details. Except for the pointing devices, features are the same.

cPad model

Figure 2-6 shows the front of the cPad model computer with the display open. To open the display, push the display latch on the front of the display and lift up. Position the display at a comfortable viewing angle.

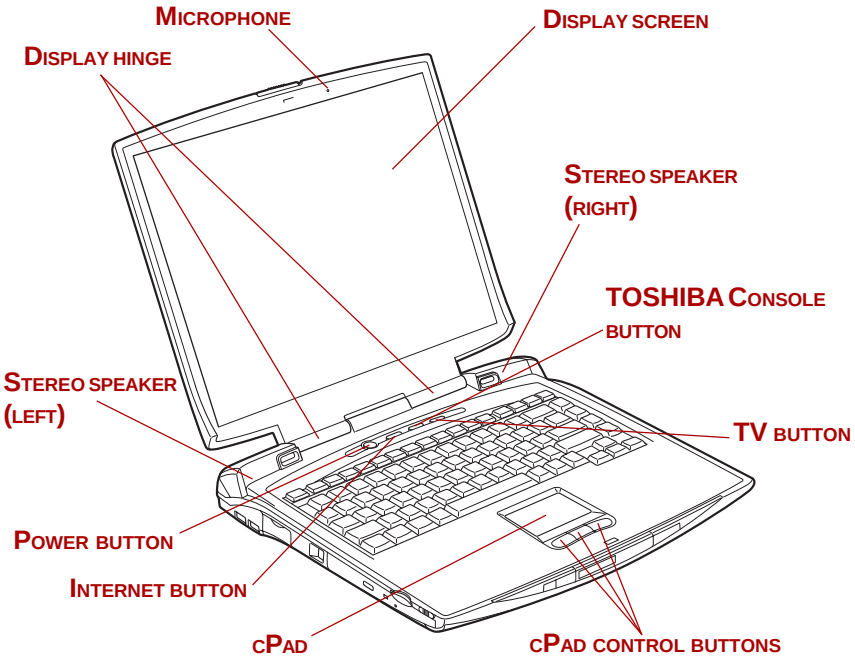


Figure 2-6 The front of the cPad model with the display open

Display hinge The display hinge holds the display screen at easy-to-view angles.

Display screen

The LCD displays high-contrast text and graphics. The computer's LCD consists of up to 1024 x 768 pixels, 1400 x 1050 pixels or 1600 x 1200 pixels. Refer to *Appendix B*.

When the computer operates on the AC adaptor the display screen's image will be somewhat brighter than when it operates on battery power. The lower brightness level is intended to save battery power.

Stereo speakers harman/kardon

The speakers emit sound generated by your software as well as audio alarms, such as low battery condition, generated by the system.

Power button

Press the power button to turn the computer's power on and off.

Internet button

Press this button to launch an Internet browser. If the computer's power is off, you can press this button to turn on the computer's power and launch the browser automatically in one step.

cPad

A cPad located in the center of the palm rest is used to control the on-screen pointer. Refer to the *Using the cPad* section in Chapter 4, *Operating Basics*.

cPad contol buttons

Control buttons below the cPad let you select menu items or manipulate text and graphics designated by the on-screen pointer.

TOSHIBA Console button

Press this button to launch an application automatically. The default is TOSHIBA Console.

Microphone

A built-in microphone lets you record sounds into your applications. See *Using the microphone* in Chapter 4, *Operating Basics.*

TV button

Press this button to set your display device to TV (Video-out). Press it again to return to LCD.

TouchPad model

Figure 2-7 shows the front of the computer with the display open. To open the display, push the display latch on the front of the display and lift up. Position the display at a comfortable viewing angle.

For details on features other than the pointing device, refer to the cPad model section.

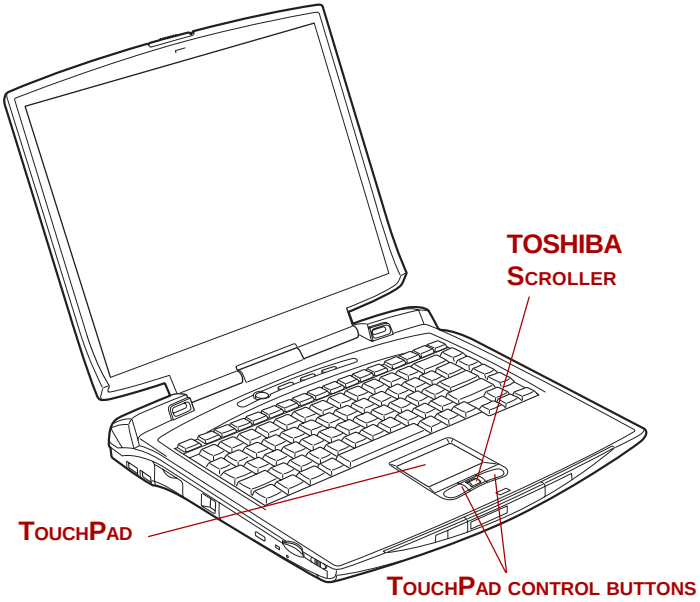


Figure 2-7 The front of the TouchPad model with the display open

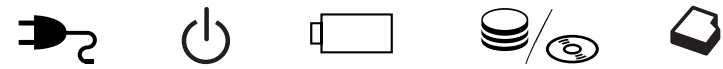
TouchPad — A TouchPad located in the center of the palm rest is used to control the on-screen pointer. Refer to the *Using the TouchPad* section in Chapter 4, *Operating Basics*.

TouchPad control buttons — Control buttons below the TouchPad let you select menu items or manipulate text and graphics designated by the on-screen pointer.

TOSHIBA Scroller — TOSHIBA Scroller is used to scroll windows.

System indicators

Icons, to the right of sub LCD, light when various computer operations are in progress.



DC IN 15V | POWER | BATTERY | FIXED HDD/ODD | TOSHIBA STYLE BAY

Figure 2-8 System indicators

DC IN 15V

The **DC IN** indicator glows green when DC power is supplied from the AC power adaptor. If the adaptor's output voltage is abnormal or if the power supply malfunctions, this indicator flashes orange.

Power

The **Power** indicator glows green when the computer is on. If you select **Standby** from **Shut Down Windows**, this indicator flashes orange (one second on, two seconds off) while the computer shuts down.

Battery

The **Battery** indicator shows the condition of the battery's charge: Green indicates full charge, orange indicates battery charging and flashing orange indicates a low battery charge. Refer to Chapter 6, *Power and Power-Up Modes*.

Fixed HDD/ODD

The **Fixed HDD/ODD** indicator glows green when the computer is accessing the built-in hard disk or fixed optical media drive.

TOSHIBA Style Bay

The **TOSHIBA Style Bay** indicator glows green when the computer is accessing a DVD-ROM drive, CD-RW/DVD-ROM drive, or TOSHIBA Style Bay HDD adaptor in the TOSHIBA Style Bay. When the secondary battery is in the TOSHIBA Style Bay, the TOSHIBA Style Bay indicator glows as follows:
green : fully charged
orange : charging the battery

Keyboard indicators

The figures below show the positions of the keypad overlay indicators and the CapsLock indicator.

When the F10 key indicator glows the keypad overlay lets you control the cursor. When the F11 key indicator glows the keypad overlay lets you enter numbers.

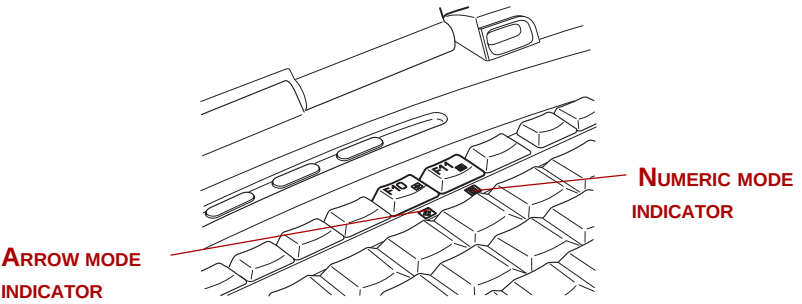


Figure 2-9 Keypad overlay indicators

When the CapsLock indicator glows the keyboard is in all-caps mode.

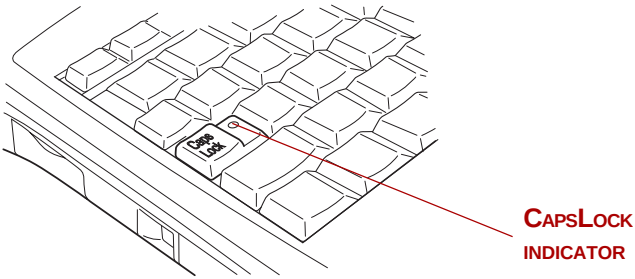


Figure 2-10 CapsLock indicator

CapsLock This indicator glows green when the alphabet keys are locked in uppercase.

Arrow mode When the **Arrow mode** indicator lights green, you can use the keypad overlay (gray labeled keys) as cursor keys. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.

Numeric mode

You can use the keypad overlay (gray labeled keys) for numeric input when the **Numeric mode** indicator lights green. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*.

USB diskette drive

A 3 1/2" diskette drive accommodates 1.44-megabyte or 720-kilobyte diskettes. It connects to the USB port.

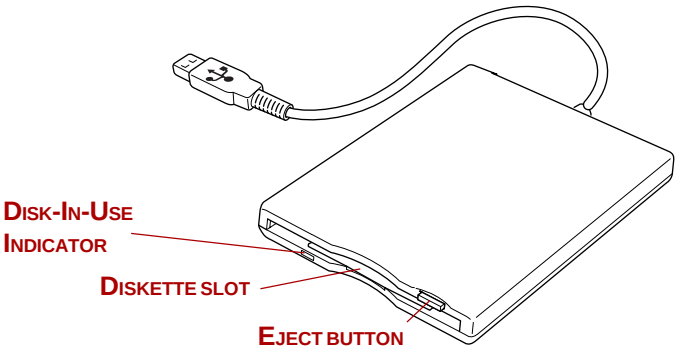


Figure 2-11 USB diskette drive

Disk-In-Use Indicator This indicator lights when the diskette is being accessed.

Diskette slot Insert diskettes in this slot.

Eject button When a diskette is fully seated in the drive, the eject button pops out. To remove a diskette, push in the eject button and the diskette pops out partially for removal.

CAUTION: *Check the* **Disk-In-Use** *indicator when you use the diskette drive. Do not press the eject button or turn off the computer while the light is glowing. Doing so could destroy data and damage the diskette or the drive.*

NOTES:

1. *The external diskette drive should be placed on a flat, horizontal surface when in use. Do not set the drive on an incline greater than 20° while it is operating.*
2. *Do not set anything on top of the diskette drive.*

Fixed optical media drive

DVD-ROM drive

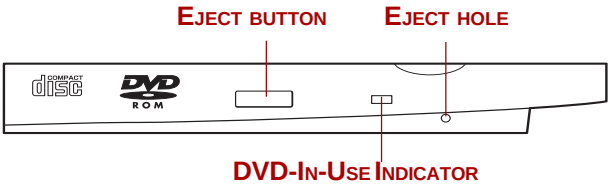


Figure 2-12 The DVD-ROM drive

The full-size DVD-ROM drive module lets you run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without using an adaptor. It runs DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. The computer is configured with either a DVD-ROM drive or CD-RW/DVD-ROM drive.

> ***NOTE:*** *The read speed is slower at the center of a disk and faster at the outer edge.*

This drive supports the following formats:

- DVD-ROM
- DVD-Video
- CD-DA
- CD-Text
- Photo CD (single/multi-session)
- CD-ROM Mode 1, Mode 2
- CD-ROM XA Mode 2 (Form1, Form2)
- Enhanced CD (CD-EXTRA)
- CD-G (Audio CD only)
- Addressing Method 2

DVD-In-Use Indicator — This indicator lights when a CD/DVD is being accessed.

Eject button — Press the eject button to open the drawer partially.

Eject hole — Insert a slender object to open the drawer when the power to the DVD-ROM drive is off.

> ***CAUTION:*** *Check the* **Fixed HDD/ODD indicator** *or* **DVD-In-Use** *indicator when you use the DVD-ROM drive. Do not press the eject button or turn off the computer while the light is glowing. Doing so could damage the CD/DVD or the drive.*

DVD-ROM drives and media are manufactured according to the specifications of six marketing regions. When you purchase DVD media, make sure it matches your drive, otherwise it will not play properly.

Code	Region
1	Canada, United States
2	Japan, Europe, South Africa, Middle East
3	Southeast Asia, East Asia
4	Australia, New Zealand, Pacific Islands, Central America, South America, Caribbean
5	Russia, Indian Subcontinent, Africa, North Korea, Mongolia
6	China

CD-RW/DVD-ROM drive

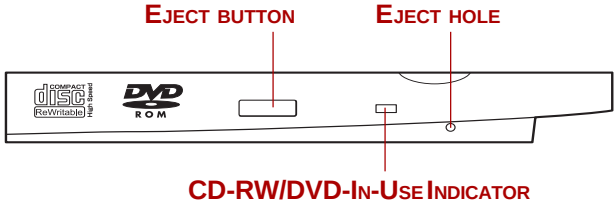


Figure 2-13 The CD-RW/DVD-ROM drive

The full-size CD-RW/DVD-ROM drive module lets you record data to rewritable CDs as well as run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without using an adaptor. The computer is configured with either a DVD-ROM drive or CD-RW/DVD-ROM drive.

> ***NOTE:*** *The read speed is slower at the center of a disk and faster at the outer edge.*

DVD read	8 speed (maximum)
CD read	24 speed (maximum)
CD-R write	24 speed (maximum)
CD-RW write	10 speed (maximum)

This drive supports the following formats:

- DVD-ROM
- CD-DA
- Photo CD (single/multi-session)
- CD-ROM Mode 1, Mode 2
- DVD-Video
- CD-Text

- CD-ROM XA Mode 2 (Form1, Form2)
- Enhanced CD (CD-EXTRA)
- CD-G (Audio CD only)
- Addressing Method 2

CD-RW/DVD-In-Use Indicator This indicator lights when a CD/DVD is being accessed.

Eject button Press the eject button to open the drawer partially.

Eject hole Insert a slender object to open the drawer when the power to the CD-RW/DVD-ROM drive is off.

CAUTION: *Check the* **Fixed HDD/ODD indicator** *or* **CD-RW/DVD-In-Use** *indicator when you use the CD-RW/DVD-ROM drive. Do not press the eject button or turn off the computer while the light is glowing. Doing so could damage the CD/DVD or the drive.*

CD-RW/DVD-ROM drives and media are manufactured according to the specifications of six marketing regions. When you purchase DVD media, make sure it matches your drive, otherwise it will not play properly.

Code	Region
1	Canada, United States
2	Japan, Europe, South Africa, Middle East
3	Southeast Asia, East Asia
4	Australia, New Zealand, Pacific Islands, Central America, South America, Caribbean
5	Russia, Indian Subcontinent, Africa, North Korea, Mongolia
6	China

CD-R describes compact disks that can be written only once. The recorded data cannot be erased or changed.

CD-RW describes compact disks that can be recorded more than once. Use either 1, 2, or 4 multi speed CD-RW disks or high-speed 4- to 10-speed disks. The write speed of the high-speed CD-RW disks is maximum 10-speed.

Use Drag'n Drop CD to write compact disks.

TOSHIBA Style Bay modules

The TOSHIBA Style Bay can accommodate the following modules: DVD-ROM drive, CD-RW/DVD-ROM drive, optional TOSHIBA Style Bay HDD adaptor, optional TOSHIBA Style Bay 2nd battery pack or Bridge media adaptor.

DVD-ROM drive

Refer to the *DVD-ROM drive* item in the *Fixed optical media drive* section for details.

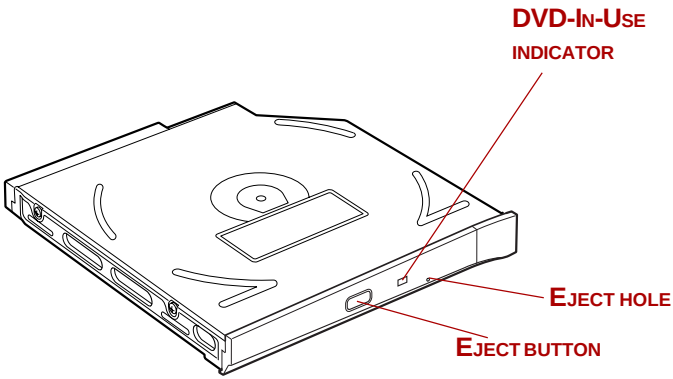


Figure 2-14 The DVD-ROM drive

CD-RW/DVD-ROM drive

Refer to the *CD-RW/DVD-ROM drive* item in the *Fixed optical media drive* section for details.

NOTE: *The physical features of this drive are similar to those of the DVD-ROM drive. Refer to the illustration in the* DVD-ROM drive *section.*

CAUTION: *Check the* **TOSHIBA Style Bay** *indicator when you use the DVD-ROM drive or CD-RW/DVD-ROM drive in the TOSHIBA Style Bay. Do not press the eject button, disconnect a drive or turn off the computer while the light is glowing. Doing so could damage the CD/DVD or the drive.*

TOSHIBA Style Bay HDD adaptor

You can increase your computer's data storage capacity by installing an optional, integrated, 2 1/2" HDD in the TOSHIBA Style Bay.

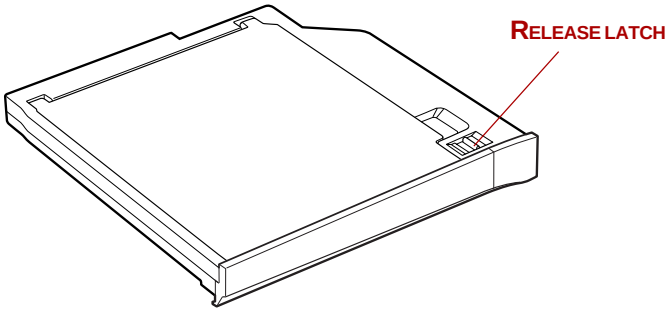


Figure 2-15 The TOSHIBA Style Bay HDD adaptor

TOSHIBA Style Bay 2nd battery pack

An optional battery pack can be installed in the TOSHIBA Style Bay to increase the computer's battery power and operating time. A TOSHIBA Style Bay 2nd battery pack is composed of a battery pack and an adaptor. For details, refer to the documentation accompanying the secondary battery pack. Refer to Chapter 8, *Optional Devices*, for details on installing a TOSHIBA Style Bay 2nd battery pack.

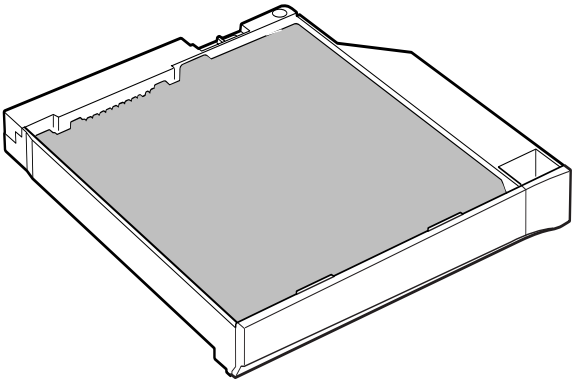


Figure 2-16 The TOSHIBA Style Bay 2nd battery pack

Bridge media adaptor

Three types of memory, a Smart Media, a Memory Stick and a Compact Flash memory can be installed and used in the Bridge media adaptor.

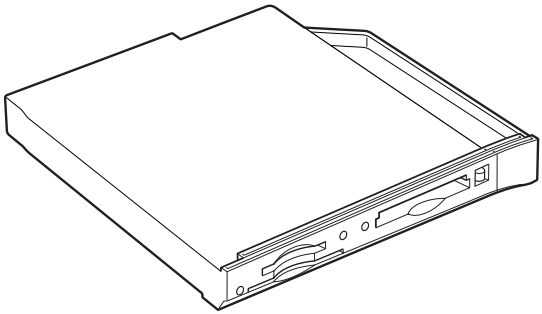


Figure 2-17 Bridge media adaptor

Weight saver

Installing a weight saver module in the TOSHIBA Style Bay lets you reduce the carrying weight of the computer. The weight saver has a recess for storing the TOSHIBA Remote Control.

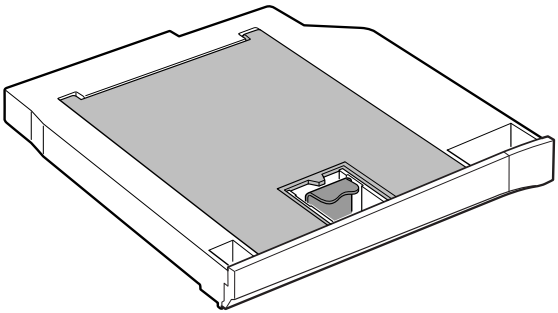


Figure 2-18 The weight saver

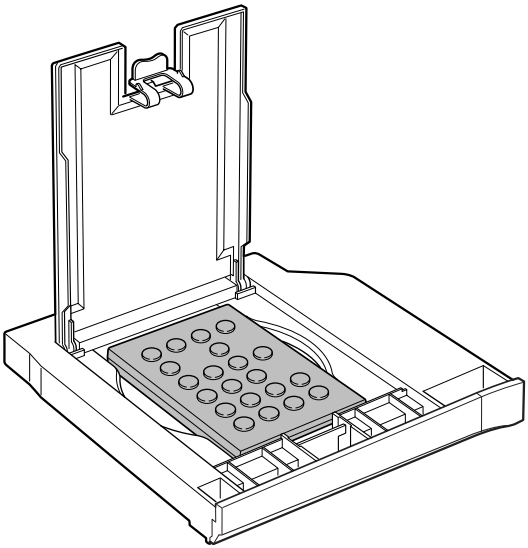


Figure 2-19The weight saver with a Remote Control

TOSHIBA Remote Control

A TOSHIBA Remote Control lets you control play of DVDs without using the buttons on the computer.

> ***NOTE:*** *You can use TOSHIBA Controls to enable/disable the remote control function.*

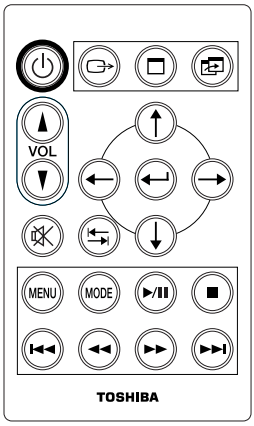


Figure 2-20 The TOSHIBA Remote Control

The following controls are available. Press the corresponding button to execute a specific control.

On/Off control

Power Turns the power on or off.

System controls

TV Press this button to set your display device to TV (Video-out). Press it again to return to LCD.

Full Screen Toggles the size of the active window between normal and maximum. In the case of InterVideo WinDVD 4, it toggles the screen between normal and full-screen.

Window change Changes the active window.

Volume controls

Volume up Increases the volume.

Volume down Decreases the volume.

Zero Volume Minimize the volume.

NOTE: *The volume controls work only when Windows is running. They do not work in CD Player Mode without Windows.*

Cursor controls

Arrows Moves the cursor in the indicated direction: up, down, left, right.

Tab Moves the cursor to the next topic.

Enter Executes the currently selected item.

DVD controls

DVD menu Displays the WinDVD menu.

MENU

Mode Switches between CD/DVD and Digital Audio. See the *Mode Control button* section in Chapter 4, *Operating Basics* for details.

MODE

Play/Pause Toggles between play and pauses play.

Stop Stops play.

Previous chapter	Skips to the previous chapter.
Fast backward	Speeds up reverse play.
Fast forward	Speeds up forward play.
Next chapter	Skips to the next chapter.

AC adaptor

The AC adaptor converts AC power to DC power and reduces the voltage supplied to the computer. It can automatically adjust to any voltage from 100 to 240 volts and to a frequency of either 50 or 60 hertz, enabling you to use the computer in almost any country/region.

To recharge the battery, simply connect the AC adaptor to a power source and the computer. See Chapter 6 *Power and Power-Up Modes* for details.

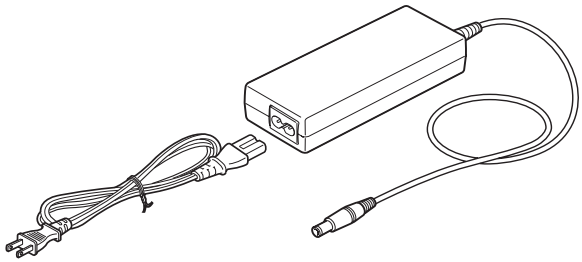


Figure 2-21 The AC adaptor

CAUTION: *Use only the AC adaptor that came with the computer or an equivalent optional adaptor. Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case. The current rating for the computer is 5.0 amperes.*

Getting Started

This chapter provides basic information to get you started using your computer. It covers the following topics:

- Setting up your work space — for your health and safety

  NOTE: *Be sure also to read* Instruction Manual for Safety & Comfort. *This guide, which is included with the computer, explains product liability.*

- Connecting the AC adaptor
- Opening the display
- Turning on the power
- Starting up for the first time
- Turning off the power
- Restarting the computer
- Restoring the preinstalled software from the Product Recovery CD-ROM

  NOTE: *All users should be sure to read the section* Starting up for the first time.

Setting up your work space

Establishing a comfortable work site is important for you and your computer. A poor work environment or stressful work habits can result in discomfort or serious injury from repetitive strain to your hands, wrists or other joints. Proper ambient conditions should also be maintained for the computer's operation. This section discusses the following topics:

- General conditions
- Placement of the computer
- Seating and posture
- Lighting
- Work habits

General conditions

In general, if you are comfortable, so is your computer, but read the following to make sure your work site provides a proper environment.

- Make sure there is adequate space around the computer for proper ventilation.
- Make sure the AC power cord connects to an outlet that is close to the computer and easily accessible.
- The temperature should be 5 to 35 degrees Centigrade (41 to 95 degrees Fahrenheit) and the relative humidity should be 20 to 80 percent.
- Avoid areas where rapid or extreme changes in temperature or humidity may occur.
- Keep the computer free of dust, moisture, and exposure to direct sunlight.
- Keep the computer away from heat sources, such as electric heaters.
- Do not use the computer near liquids or corrosive chemicals.
- Do not place the computer near objects that create strong magnetic fields (e.g., stereo speakers).
- Do not operate the computer in close proximity to a mobile phone.
- Leave ample ventilation room for the fan. Do not block the vents.

Placement of the computer

Position the computer and peripheral devices to provide comfort and safety.

- Set the computer on a flat surface at a comfortable height and distance. The display should be no higher than eye level to avoid eye strain.
- Place the computer so that it is directly in front of you when you work and make sure you have adequate space to easily operate other devices.
- Allow adequate space behind the computer to let you freely adjust the display. The display should be angled to reduce glare and maximize visibility.
- If you use a paper holder, set it at about the same height and distance as the computer.

Seating and posture

The height of your chair in relation to the computer and keyboard as well as the support it gives your body are primary factors in reducing work strain. Refer to the following tips and to figure 3-1.

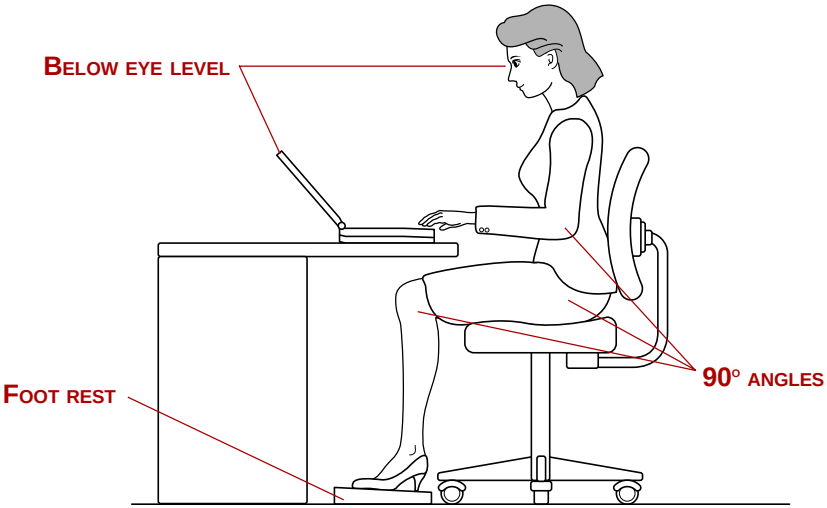


Figure 3-1 Posture and positioning of the computer

- Place your chair so that the keyboard is at or slightly below the level of your elbow. You should be able to type comfortably with your shoulders relaxed.
- Your knees should be slightly higher than your hips. If necessary, use a foot rest to raise the level of your knees to ease pressure on the back of your thighs.
- Adjust the back of your chair so it supports the lower curve of your spine.
- Sit straight so that your knees, hips and elbows form approximately 90 degree angles when you work. Do not slump forward or lean back too far.

Lighting

Proper lighting can improve legibility of the display and reduce eye strain.

- Position the computer so that sunlight or bright indoor lighting does not reflect off the screen. Use tinted windows, shades or other screen to eliminate sun glare.
- Avoid placing the computer in front of bright light that could shine directly in your eyes.
- If possible, use soft, indirect lighting in your computer work area. Use a lamp to illuminate your documents or desk, but be sure to position the lamp so that it does not reflect off the display or shine in your eyes.

Work habits

A key to avoiding discomfort or injury from repetitive strain is to vary your activities. If possible, schedule a variety of tasks into your work day. If you must spend long periods at the computer, finding ways to break up the routine can reduce stress and improve your efficiency.

- Sit in a relaxed posture. Good positioning of your chair and equipment as described earlier can reduce tension in your shoulders or neck and ease back strain.
- Vary your posture frequently.
- Occasionally stand up and stretch or exercise briefly.
- Exercise and stretch your wrists and hands a number of times during the day.
- Frequently, look away from the computer and focus your eyes on a distant object for several seconds, for example 30 seconds every 15 minutes.
- Take frequent short breaks instead of one or two long breaks, for example, two or three minutes every half hour.
- Have your eyes examined regularly and visit a doctor promptly, if you suspect you might be suffering from a repetitive strain injury.

A number of books are available on ergonomics and repetitive strain injury or repetitive stress syndrome. For more information on these topics or for pointers on exercises for such stress points as hands and wrists, please check with your library or book vendor. Also refer to the computer's *Instruction Manual for Safety & Comfort.*

Connecting the AC adaptor

Attach the AC adaptor when you need to charge the battery or you want to operate from AC power. It is also the fastest way to get started, because the battery pack will need to be charged before you can operate from battery power.

The AC adaptor can be connected to any power source supplying from 100 to 240 volts and 50 or 60 hertz. For details on using the AC adaptor to charge the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.

> ***CAUTION:*** *Use of the wrong adaptor could damage your computer. TOSHIBA assumes no liability for any damage in such case. The current rating for the computer is 5.0 amperes.*

1. Connect the power cord to the AC adaptor.

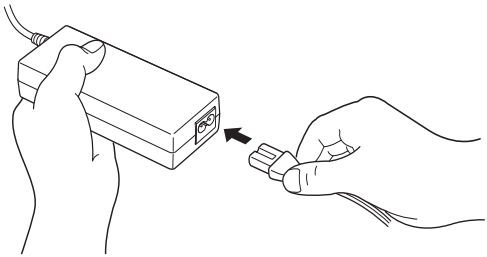


Figure 3-2 Connecting the power cord to the AC adaptor

2. Connect the AC adaptor's DC output plug to the **DC IN** input port on the back of the computer.

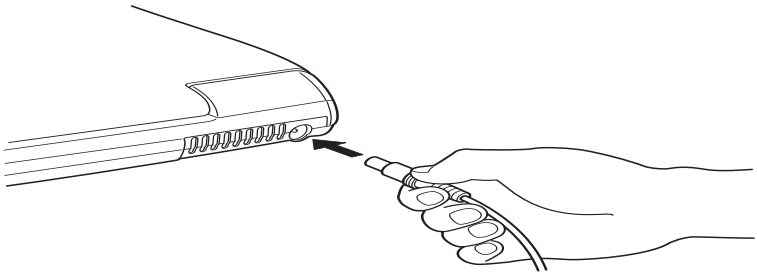


Figure 3-3 Connecting the adaptor to the computer

3. Plug the power cord into a live wall outlet. The **Battery** and **DC IN** indicators on the front of the computer should glow.

Opening the display

The display panel can be rotated in a wide range of angles for optimal viewing.

1. Slide the display latch on the front of the computer to the right.
2. Lift the panel up and adjust it to the best viewing angle for you.

CAUTION: *Use reasonable care when opening and closing the display panel. Opening it vigorously or slamming it shut could damage the computer.*

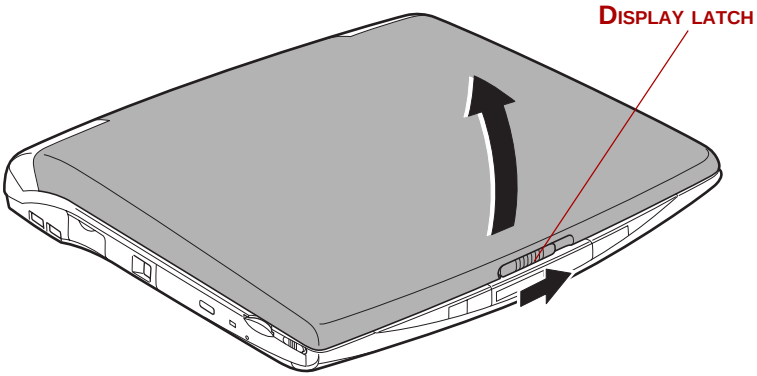


Figure 3-4 Opening the display

Turning on the power

This section describes how to turn on the power.

NOTE: *After you turn on the power for the first time, do not turn it off until you have set up the operating system. Refer to the section* Starting up for the first time *in this chapter.*

1. Open the display.

2. Press and hold the computer's power button for two or three seconds.

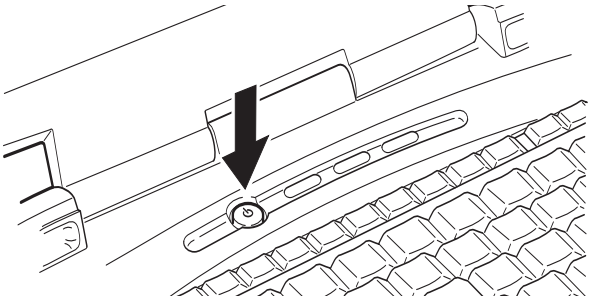


Figure 3-5 Turning on the power

Starting up for the first time

When you first turn on the power, the computer's initial screen is the Microsoft Windows XP Startup Screen Logo. Follow the on-screen directions for each screen. During setup, you can click the **Back** button to return to the previous screen.

Be sure to read the **`Windows End User License Agreement`** display carefully.

NOTE: *Be sure to read the License Agreement carefully.*

Turning off the power

The power can be turned off in one of the following modes: Shut down (Boot), Hibernation or Standby mode.

Shut Down mode (Boot mode)

When you turn off the power in Shut Down mode no data is saved and the computer will boot to the operating system's main screen.

1. If you have entered data, save it to the hard disk or to a diskette.
2. Make sure all disk activity has stopped, then remove the CD/DVD-ROM or diskette.

CAUTION: *Make sure the* **Fixed HDD/ODD** *and* **TOSHIBA Style Bay** *indicators are off. If you turn off the power while a disk is being accessed, you can lose data or damage the disk.*

3. Click **start** and click **Turn Off Computer**. From the **Turn Off Computer** window click **Turn Off**.
4. Turn off the power to any peripheral devices.

CAUTION: *Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.*

Hibernation mode

The hibernation feature saves the contents of memory to the hard disk when the computer is turned off. The next time the computer is turned on, the previous state is restored. The hibernation feature does not save the status of peripheral devices.

CAUTIONS:

1. *Save your data. While entering hibernation mode, the computer saves the contents of memory to the HDD. However, for safety sake, it is best to save your data manually.*
2. *Data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the* **Fixed HDD/ODD** *indicator to go out.*
3. *Do not install or remove a memory module while the computer is in hibernation mode. Data will be lost.*

Benefits of hibernation

The hibernation feature provides the following benefits:

- Saves data to the hard disk when the computer automatically shuts down because of a low battery.

  NOTE: *For the computer to shut down in hibernation mode, the hibernation feature must be enabled in two places in TOSHIBA Power Saver: the Hibernate window and the Battery Alarm item of the Alarm window. Otherwise, the computer will shut down in Standby mode. If battery power becomes depleted, data saved in Standby will be lost.*

- You can return to your previous working environment immediately when you turn on the computer.
- Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System hibernate feature.
- You can use the panel power off feature.

Starting Hibernation

> ***NOTE:*** *You can also enable Hibernation by pressing* **Fn + F4**. *See Chapter 5,* Keyboard, *for details.*

To enter Hibernation mode, follow the steps below.

1. Click **start** and click **Turn Off Computer**.
2. In **Turn Off Computer** click **Hibernate**. The **Standby** icon will be displayed initially. To display the **Hibernate** icon press the **Shift** key.

The computer will also enter Hibernate mode automatically when you:

- Press the power button.
- Close the lid.

First, however, make the appropriate settings according to the steps below.

1. Open the Windows **Control Panel** and click the **TOSHIBA Power Saver** icon.
2. Select the **Hibernate** window, select the **Enable Hibernate support** check box and click the **Apply** button.
3. Select the **Power Save Modes** window.
4. Double-click **Power Save Modes** and open the **System Power Mode** window.
5. Enable the desired Hibernation settings for **When I press the power button** and **When I close the lid**.
6. Click the **OK** button.

Data save in hibernation mode

When you turn off the power in hibernation mode, the computer takes a moment to save current memory data to the hard disk. During this time, the **Fixed HDD/ODD** indicator will light.

After you turn off the computer and memory is saved to the hard disk, turn off the power to any peripheral devices.

> ***CAUTION:*** *Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.*

Standby mode

If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. When you turn on the power again, you can continue working right where you left off.

CAUTIONS:

1. *Before entering Standby mode, be sure to save your data.*
2. *Do not install or remove a memory module while the computer is in standby mode. The computer or the module could be damaged.*
3. *Do not remove the battery pack while the computer is in standby mode (unless the computer is connected to an AC power source). Data in memory will be lost.*
4. *If you carry the computer on board an aircraft or into a hospital, be sure to shut down the computer in hibernation mode or in shutdown mode to avoid radio signal interference.*

Benefits of standby

The standby feature provides the following benefits:

- Restores the previous working environment more rapidly than does hibernation.
- Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System Standby feature.
- You can use the panel power off feature.

Executing standby

NOTE: *You can also enable Standby by pressing* **Fn + F3**. *See Chapter 5,* Keyboard, *for details.*

You can enter standby mode in one of three ways:

1. Click **start**, click **Turn Off Computer** and click **Stand by**.
2. Close the display panel. This feature must be enabled. To enable it, select the **TOSHIBA Power Saver** icon in the Control Panel and open the **System Power Mode** item.

3. Press the power button. This feature must be enabled. To enable it, select the **TOSHIBA Power Saver** icon in the Control Panel and open the **System Power Mode** item.

When you turn the power back on, you can continue where you left when you shut down the computer.

NOTES: *1. When the computer is shut down in standby mode, the power indicator flashes orange.*

2. If you are operating the computer on battery power, you can lengthen the operating time by shutting down in hibernation mode. Standby mode consumes more power.

Standby limitations

Standby will not function under the following conditions:

- Power is turned back on immediately after shutting down.
- Memory circuits are exposed to static electricity or electrical noise.

Restarting the computer

Certain conditions require that you reset the system. For example, if:

- You change certain computer settings.
- An error occurs and the computer does not respond to your keyboard commands.

There are three ways to reset the computer system:

1. Press **Ctrl** + **Alt** + **Del** to display the **Windows Task Manager**, then select **Shutdown** and **Restart**.
2. Select **Restart** from the **Turn Off Computer** window in the **start** menu.
3. Press the power button and hold it down for five seconds. Wait 10 to 15 seconds, then turn the power on again by pressing the power button.

Restoring the preinstalled software from the Product Recovery CD-ROM

If preinstalled files are damaged, use the Product Recovery CD-ROM to restore them. To restore the operating system and all preinstalled software, follow the steps below.

> ***CAUTION:*** *When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.*

1. Load the Product Recovery CD-ROM in the fixed optical media drive and turn off the computer's power.
2. Hold down the **F12** key and turn on the power. When **In Touch with Tomorrow TOSHIBA** appears, release the **F12** key.
3. Use the left or right cursor key to select the CD-ROM icon in the display menu. For details, refer to the *Boot priority* section in Chapter 7, *HW Setup*.
4. Follow the on-screen instructions.

Operating Basics

This chapter gives information on basic operations including using the pointing devices, USB diskette drive, optical media drives, Sub LCD, audio/video controls, the microphone, the internal modem, wireless communication, LAN, TOSHIBA Remote Control and changing TOSHIBA Style Bay modules. It also provides tips on caring for your computer, diskettes and CD/DVDs.

Pointing devices

Depending on the configuration, the computer is equipped with either a cPad or a TouchPad. Refer to the appropriate section for details on operations.

Using the cPad

To use the cPad, touch and move your finger tip across it in the direction you want the on-screen pointer to go.

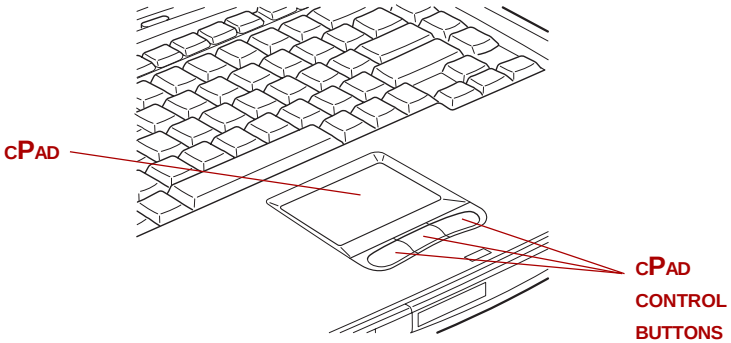


Figure 4-1 cPad and cPad control buttons

cPad control buttons

There are three buttons below the cPad. The middle button displays icons representing utilities described in the next section. Tap an icon to start the corresponding utility. The left and right buttons below the cPad are used like the buttons on a mouse pointer. Press the left button to select a menu item or to manipulate text or graphics designated by the pointer. Press the right button to display a menu or other function depending on the software you are using.

> ***NOTE:*** *You can also tap the cPad to perform functions similar to those of the left button.*
>
> ***Click:*** *Tap the cPad once.*
>
> ***Double-click:*** *Tap twice.*
>
> ***Drag and drop:*** *Tap to select the material you want to move. Leave your finger on the cPad after the second tap and move the material.*

cPad utilities

The following utilities greatly expand the functions of the cPad. To launch the utilities, press the center cPad button. For details on using each utility, refer to the respective help files.

Application launcher — Displays icons corresponding to selected applications. Tap an icon to start the related application. To close an application, tap the "X" in the corner. You can use cPad Properties to add or delete icons.

Ten key pad — The key pad lets you enter numerical data into applications.

Calculator — A four-function calculator or a weights and measures function lets you perform simple calculations and paste them into the currently active application. Press this button to display the calculator function. To change functions, press the Weights and measures icon. To change back to the calculator, press the Normal calculator icon.

Weights and measures

Normal calculator

Sticky notes

Lets you hand write or type notes. You can use one of the notes in Sticky notes as wallpaper.

You can set an alarm clock to automatically display the note and execute other actions such as sounds associated with the message. Use the sticky notes properties window to set an alarm and to designate a note as wallpaper.

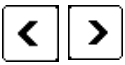
Properties

To set the properties for sticky notes, tap the Properties icon.

Input

To input a note, tap the Input icon. You can toggle between a pencil icon (handwriting) and a keyboard (key input).

Previous/next



When you save a note, it is assigned a number one higher than the previously saved note. To view a previous note (decrement) tap the < icon. To view the next note (increment) tap the > icon.

Signature capture

Lets you enter a signature or small sketch into an application.

Calendar

Displays a calendar.

cPad Properties

Lets you add or delete icons for the application launcher utility. The following icons cannot be deleted: cPad Properties, Ten Key, Calculator, Signature Capture and Sticky Notes. You can also select a background for the cPad: wall paper, animation, clock or calendar.

Help

Displays help files for cPad utilities.

Copy, Paste, Clear

You can copy entries from cPad utilities to other applications.

Copy To copy data from the cPad to the clipboard, tap the Copy icon.

Paste To paste data from the clipboard to the currently active application, tap the Paste icon.

Clear To erase a cPad screen, tap the Clear icon.

Using the TouchPad

To use the TouchPad, simply touch and move your finger tip across it in the direction you want the on-screen pointer to go.

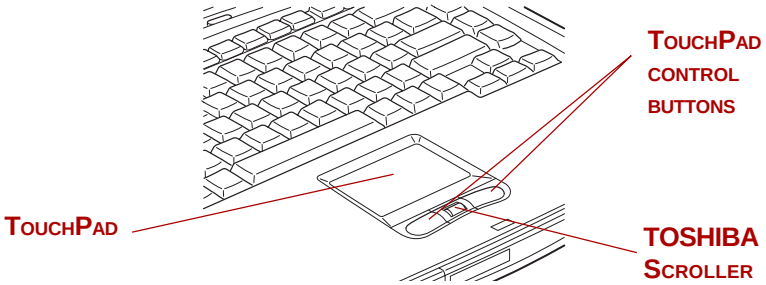


Figure 4-2 TouchPad and TouchPad control buttons

Two buttons below the keyboard are used like the buttons on a mouse pointer. Press the left button to select a menu item or to manipulate text or graphics designated by the pointer. Press the right button to display a menu or other function depending on the software you are using. The TOSHIBA Scroller is used to scroll windows.

NOTE: *You can also tap the TouchPad to perform functions similar to those of the left button.*

Click: *Tap the TouchPad once*

Double-click: *Tap twice*

Drag and drop: *Tap to select the material you want to move. Leave your finger on the TouchPad after the second tap and move the material.*

Using the USB diskette drive

A 3 1/2" diskette drive connects to the computer's USB port. It accommodates 1.44-megabyte or 720-kilobyte diskettes. Refer to Chapter 2, *Grand Tour*, for more information.

Connecting 3 1/2" diskette drive

To connect the drive, plug the diskette drive connector into a USB port. Refer to Figure 4-3.

CAUTION: *Make sure the connector is right side up and properly aligned with the socket. Do not try to force the connection, doing so can damage the connecting pins.*

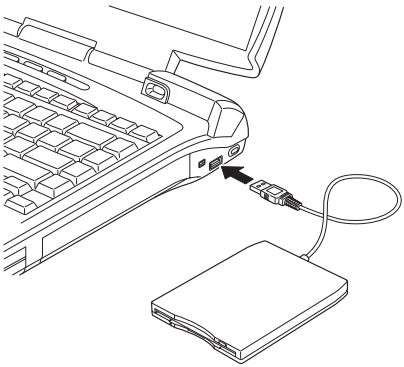


Figure 4-3 Connecting the USB diskette drive

NOTE: *If you connect the diskette drive after turning on the computer, it will take about 10 seconds for the computer to recognize the drive. Do not disconnect and reconnect before 10 seconds has elapsed.*

Disconnecting 3 1/2" diskette drive

When you have finished using the diskette drive, follow the procedures below to disconnect it:

1. Wait for the indicator light to go out to make sure all diskette activity has stopped.

   CAUTION: *If you disconnect the diskette drive or turn off the power while the computer is accessing the drive you may lose data or damage the diskette or the drive.*

2. Click the **Safety Remove Hardware** icon on the Task Bar.
3. Click **Diskette drive**.
4. Pull the diskette drive connector out of the USB port.

Changing TOSHIBA Style Bay modules

This section explains how to change modules in the TOSHIBA Style Bay. The illustrations show replacement of the DVD-ROM drive with the TOSHIBA Style Bay HDD adaptor. Therefore, the text refers to those modules. However, the procedures are the same for any of the modules: CD-RW/DVD-ROM drive, bridge media adaptor, HDD adaptor, TOSHIBA Style Bay 2nd battery pack with separate tray or weight saver.

CAUTIONS: 1. *To avoid injury, do not put your hand into the TOSHIBA Style Bay slot.*

2. *Before removing or installing a second battery pack, turn off the computer's power.*

NOTE: *The TOSHIBA Mobile Extension is preinstalled to support hot swapping under Windows. Refer to Chapter 1,* Introduction*, and to the utility's online help files for information on using this utility to change modules while the computer's power is on. If you are using a Bridge media adaptor, you can click the Windows Safety Remove Hardware icon on the Task Bar to remove the Bridge media adaptor.*

Removing a module

Remove the DVD-ROM drive as described below.

1. Check all disk indicators to make sure no disks are operating.
2. Turn the computer upside down.

CAUTION: *Wait for all disk indicators to go out before you turn over the computer and be careful to lay the computer down gently. Shock can damage the HDD or other components.*

3. Remove the screw near the icon securing the TOSHIBA Style Bay.
4. Make sure the screw in the TOSHIBA Style Bay lock is set in the hole for the unlock position.
5. Slide the TOSHIBA Style Bay latch to the unlock position.
6. Grasp the DVD-ROM drive and slide it out.

CAUTION: *The DVD-ROM drive and other TOSHIBA Style Bay modules can become hot with use. Be careful when removing the module.*

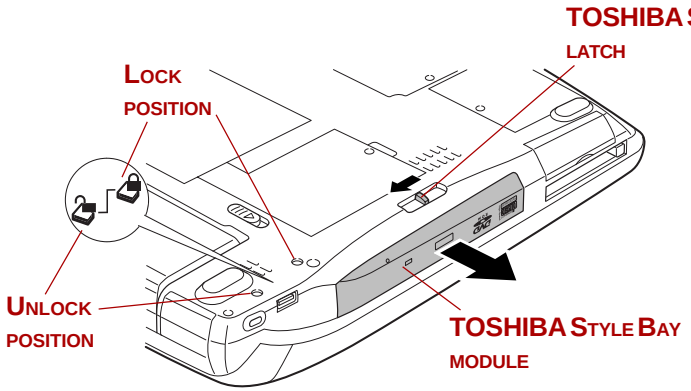


Figure 4-4 Removing the DVD-ROM drive

Installing a module

Install the TOSHIBA Style Bay HDD adaptor as described below.

1. Insert the TOSHIBA Style Bay HDD adaptor in the computer as shown below and press until the ejector clicks.

2. If you want to lock the TOSHIBA Style Bay module, set the TOSHIBA Style Bay lock screw in the hole for the lock position.

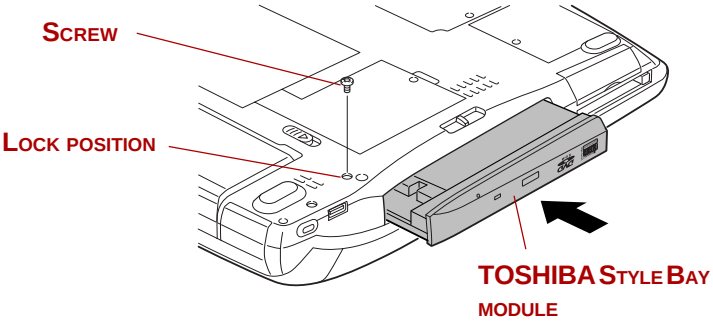


Figure 4-5 Installing the TOSHIBA Style Bay HDD adaptor

Using optical media drives

The text and illustrations in this section refer primarily to the Fixed DVD-ROM drive. However, operation is the same for the CD-RW/DVD-ROM drive in the fixed optical media drive or TOSHIBA Style Bay. The full-size drive provides high-performance execution of CD/DVD-ROM-based programs. You can run either 12 cm (4.72") or 8 cm (3.15") CD/DVDs without an adaptor. An ATAPI interface controller is used for CD/DVD-ROM operation. When the computer is accessing a CD/DVD-ROM, an indicator on the drive glows and the Fixed HDD/ODD or TOSHIBA Style Bay indicator glows.

NOTE: *Use the WinDVD 4 application to view DVD-Video disks.*

If you have a CD-RW/DVD-ROM drive, refer also to the *Writing CDs* section for precautions on writing to CDs.

Loading disks

To load CD/DVDs, follow the steps below and refer to figures 4-6 to 4-10.

1. a. When the power is on, press the DVD-ROM eject button to open the drawer slightly.

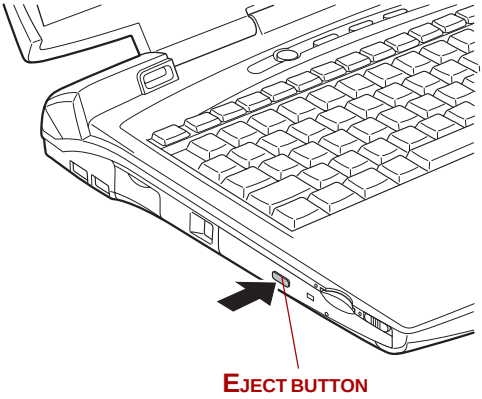


Figure 4-6 Pressing the DVD-ROM eject button

b. Pressing the eject button will not open the drawer when the DVD-ROM drive's power is off. If the power is off, you can open the drawer by inserting a slender object (about 15 mm) such as a straightened paper clip into the eject hole just to the right of the eject button.

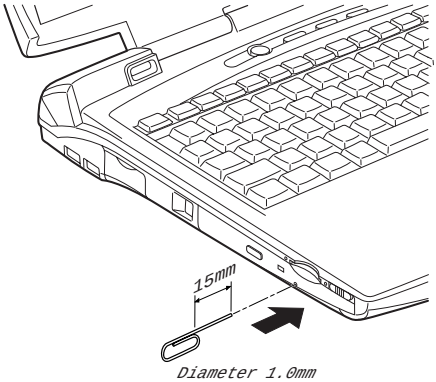


Figure 4-7 Manual release with the eject hole

2. Grasp the drawer gently and pull until it is fully opened.

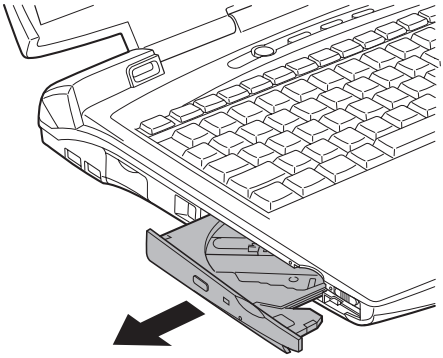


Figure 4-8 Pulling the drawer open

3. Lay the CD/DVD, label side up, in the drawer.

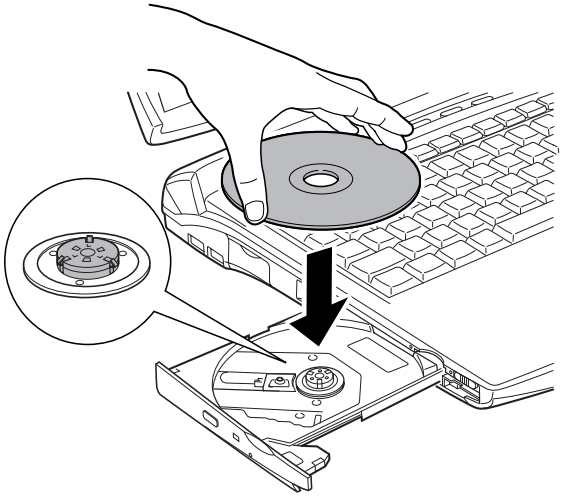


Figure 4-9 Inserting a CD/DVD

NOTE: *When the drawer is fully opened, the edge of the computer will extend slightly over the CD/DVD tray. Therefore, you will need to turn the CD/DVD at an angle when you place it in the tray. After seating the CD/DVD, however, make sure it lies flat, as shown in figure 4-9.*

CAUTIONS: *1. Do not touch the laser lens. Doing so could cause misalignment.*

2. Be careful to keep foreign matter from entering the drive. Check the back edge of the tray to make sure it carries no debris before closing the drive.

4. Press gently at the center of the CD/DVD until you feel it click into place. The CD/DVD should lie below the top of the spindle, flush with the spindle base.
5. Push the center of the drawer to close it. Press gently until it locks into place.

CAUTION: *If the CD/DVD is not seated properly when the drawer is closed, the CD/DVD might be damaged. Also, the drawer might not open fully when you press the eject button.*

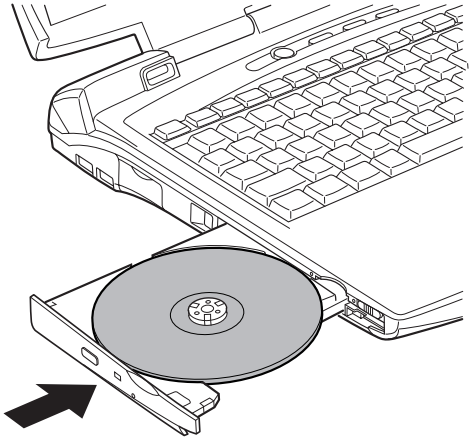


Figure 4-10 Closing the DVD-ROM drawer

Removing disks

To remove the CD/DVD, follow the steps below and refer to figure 4-11.

CAUTION: *Do not press the eject button while the computer is accessing the Fixed DVD-ROM drive. Wait for the* **Fixed HDD/ODD** *indicator to go out before you open the drawer. Also, if the CD/DVD is spinning when you open the drawer, wait for it to stop before you remove it.*

1. To pop the drawer partially open, press the eject button. Gently pull the drawer out until it is fully opened.

   CAUTIONS: *1. When the drawer pops open slightly, wait a moment to make sure the CD/DVD has stopped spinning before pulling the drawer fully open.*

   2. Turn off the power before you use the eject hole. If the CD/DVD is spinning when you open the drawer, the CD/DVD could fly off the spindle and cause injury.

2. The CD/DVD extends slightly over the sides of the drawer so you can grasp it. Hold the CD/DVD gently and lift it out.

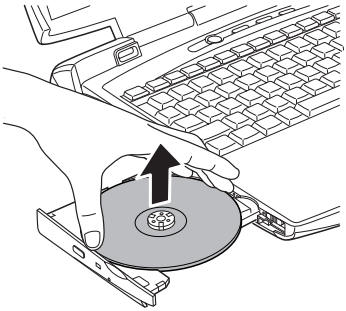


Figure 4-11 Removing a CD/DVD

3. Push the center of the drawer to close it. Press gently until it locks into place.

Sub LCD

This section describes the sub LCD. It is divided into three parts: mode, status and battery charge level.

MODE TEXT/TIME VOLUME BATTERY CHARGE LEVEL

Figure 4-12 Sub-LCD

NOTE: *The Sub LCD has a backlight that turns on for five seconds.*

- *When the Mode Control button or an audio/video control button is pressed*
- *When you turn the power on*

Mode

The left side of the LCD displays one of four icons. Refer to the *Audio/video controls* section for details on setting the mode.

Press the Mode Control button to toggle between CD/DVD control, and Digital audio.

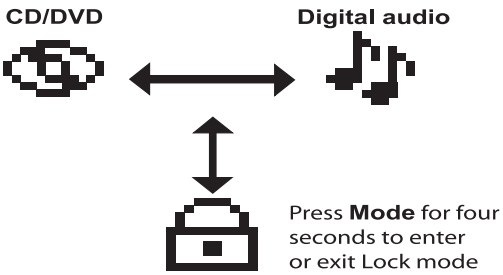


Figure 4-13 Mode control

You can lock the current setting by holding down the Mode Control button for four seconds (while the power turns off). In the lock state the mode change feature does not work. To unlock the setting, hold down the Mode Control button for four seconds (while the power turns off).

Status

The center panel displays the following:

- Time
- CD/DVD track/time
- Power messages:

Status	Display
ON	`Welcome!`
OFF	`See you!`
STANDBY or HIBERNATION	`Zzz…`
RESUME	`Wake up!`

- Owner string

  An owner string of up to 32 characters can be displayed. To set an owner string, open the **Control Panel**, open **TOSHIBA Controls** and click the **Sub LCD** tab.

  NOTE: *If the owner string is longer than eight characters, it will scroll across the sub LCD. You can enter a password hint or other information of your choosing.*

Battery charge level

The right side shows the battery charge level.

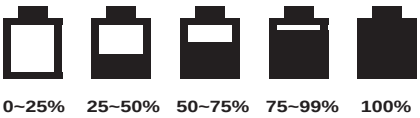


Figure 4-14 Battery charge level

Audio/Video controls

This section describes how to use the audio/video control buttons. You do not have to turn on the computer's operating system to play audio CD/DVDs. The following controls let you use the computer as a stand-alone CD/DVD player. When the operating system is running, the buttons control video as well as audio.

Mode Control button

Press this button to switch between CD/DVD and Digital Audio. The sub LCD displays an icon to indicate the mode: **CD/DVD** or **Digital Audio**. You can lock the other audio/video control buttons by pressing Mode Control button for four seconds (while the power turns off). The **Lock** icon will appear in the sub LCD.

Controls for CD/DVD and Digital Audio

The chart below describes controls for CD/DVD and Digital Audio.

	CD/DVD control	Digital Audio control
Power is off and you press Play/Pause	If an audio CD is in the fixed optical media drive, the system enters CD Player mode and operates as a stand-alone CD player. If a DVD is in the fixed optical media drive, the operating system starts and the DVD Video player starts.	Operating system starts, TOSHIBA Media Player starts and Digital Audio Data play begins.
CD player mode and you press Mode Control	Fixed optical media drive power turns off.	----------
OS is running and you press Play/Pause	If an audio CD is in the optical media drive, TOSHIBA Media Player starts and CD audio play begins. If a DVD is in the optical media drive, the DVD Video player starts and DVD Video play begins.	TOSHIBA Media Player starts and Digital Audio Data play begins.

NOTES: *1. If the computer power is off, the CD/DVD control functions only for the fixed optical media drive. If you want to control the optical media drive in the TOSHIBA Style Bay by CD/DVD control when the OS is booted up, set the appropriate player application software. You cannot play optical media in the TOSHIBA Style Bay, only by setting the internal CD/DVD play drive on the Media Apps tab of the TOSHIBA Controls.*

2. To play Digital Audio Data, you must set the play list in the TOSHIBA Media Player. The next time you play Digital Audio Data in succession, the former play list will become active. If a CD was played the previous time, then All Audio will be used.

CAUTION: *Do not install or remove a memory module while the fixed optical media drive power is on in CD Player mode. First press the Mode control button to turn off the power to the fixed optical media drive.*

Next and previous buttons

A single button on a rocker controls the **Next** and **Previous** functions. Press on the icon to select the desired function.

Next Press the ▶▶| icon to advances to the next track, chapter or data.

Previous Press the |◀◀ icon to advances to the previous track, chapter or data.

NOTE: *If Random is selected in TOSHIBA Media Player, selecting Next or Previous advances to a random selection.*

Play/Pause and Stop buttons

A single button on a rocker controls the **Play/Pause** and **Stop** functions. Press on the icon to select the desired function.

Play/Pause Press the ▶/❚❚ icon to begin or pause play.

Stop Press the ■ icon to stop play.

Writing CDs

The CD-RW/DVD-ROM drive lets you write as well as read CD-ROMs. Observe the precautions in this section to ensure the best performance for writing CDs. For information on loading and unloading CDs refer to the *Using optical media drive* section.

> ***NOTE:*** *CD-R disks can be written to only once. CD-RW disks can be rewritten many times.*

Before writing or rewriting

Please observe the following points when you write or rewrite the data.

- We recommend the following manufacturers of CD-R and CD-RW media. Media quality can affect write or rewrite success rates.

  CD-R: TAIYOYUDEN CO., LTD.
  Mitsui Chemicals Inc.
  MITUBISHI CHEMICAL CORPORATION
  RICOH Co., Ltd.
  Hitachi Maxell Ltd.

  CD-RW: MITUBISHI CHEMICAL CORPORATION
  RICOH Co., Ltd.

TOSHIBA has confirmed the operation of CD-R and CD-RW media of the manufacturers above. Operation of other media cannot be guaranteed.

- CD-RW can generally be rewritten about 1,000 times. However, the actual number of rewrites is affected by the quality of the media and the way it is used.
- Be sure to connect the AC adaptor when you write or rewrite.
- Be sure to close all other software programs except the writing software.
- Do not run software such as a screen saver which can put a heavy load on the CPU.
- Operate the computer at full power. Do not use power-saving features.
- Do not write while virus check software is running. Wait for it to finish, then disable virus detection programs including any software that checks files automatically in the background.
- Do not use hard disk utilities, including those intended to enhance HDD access speed. They may cause unstable operation and damage data.

- Write from the computer's HDD to the CD. Do not try to write from shared devices such as a LAN server or any other network device.
- Writing with software other than *Drag'n Drop CD* has not been confirmed. Therefore, operation with other software cannot be guaranteed.

When writing or rewriting

Note the following when you write or rewrite a CD-R or CD-RW.

- Always copy data from the HDD to the CD. Do not use cut-and-paste. The original data will be lost if there is a write error.
- Do not perform any of the following actions :
  - Operate the computer for any other function, including use of a mouse or cPad/TouchPad, closing/opening the LCD panel.
  - Start a communication application such as a modem.
  - Apply impact or vibration to the PC.
  - Install, remove or connect external devices, including the following:

    PC card, SD card, USB devices, external display, i.LINK devices, optical digital devices.
  - Use the Mode control button and Audio/Video control button to reproduce music and voice.
  - Open the optical media drive.
- If the media is poor in quality, dirty or damaged, writing or rewriting errors may occur.
- Set the computer on a level surface and avoid places subject to vibration such as airplanes trains, or cars. Do not use an unstable surface such as a stand.
- Keep mobile phones and other wireless communication devices away from the computer.

Media care

This section provides tips on protecting data stored on your CD/DVDs and diskettes.

Handle your media with care. The following simple precautions will increase the lifetime of your media and protect the data stored on them:

CD/DVDs

1. Store your CD/DVDs in the container they came in to protect them and keep them clean.
2. Do not bend the CD/DVD.
3. Do not write on, apply a sticker to, or otherwise mar the surface of the CD/DVD that contains data.
4. Hold the CD/DVD by its outside edge or the edge on the center hole. Fingerprints on the surface can prevent the drive from properly reading data.
5. Do not expose to direct sunlight, extreme heat or cold. Do not place heavy objects on your CD/DVDs.
6. If your CD/DVDs become dusty or dirty, wipe them with a clean dry cloth. Wipe from the center out, do not wipe in a circular direction around the CD/DVD. If necessary, use a cloth dampened in water or a neutral cleaner. Do not use benzine, thinner or similar cleaner.

Diskettes

1. Store your diskettes in the container they came in to protect them and keep them clean. If a diskette is dirty, do not use cleaning fluid. Clean it with a soft damp cloth.
2. Do not slide back the diskette's protective metal covering or touch the diskette's magnetic surface. Fingerprints may prevent the diskette drive from reading data from the diskette.
3. Data may be lost if the diskette is twisted; bent; or exposed to direct sunlight, extreme heat or cold.
4. Do not place heavy objects on your diskettes.
5. Do not eat, smoke, or use erasers near your diskettes. Foreign particles inside the diskette's jacket can damage the magnetic surface.
6. Magnetic energy can destroy the data on your diskettes. Keep your diskettes away from speakers, radios, television sets and other sources of magnetic fields.

Using the microphone

Your computer has a built-in microphone that can be used to record monaural sounds into your applications. It can also be used to issue voice commands to applications that support such functions.

Since your computer has a built-in microphone and speaker, "feedback" may be heard under certain conditions. Feedback occurs when sound from the speaker is picked up in the microphone and amplified back to the speaker, which amplifies it again to the microphone.

This feedback occurs repeatedly and causes a very loud, high-pitched noise. It is a common phenomenon that occurs in any sound system when the microphone input is output to the speaker (throughput) and the speaker volume is too loud or too close to the microphone. You can control throughput by adjusting the volume of your speaker or through the Mute function.

To adjust the volume or activate Mute, click **start**, point to **All Programs**, point to **Accessories**, point to **Entertainment** and click **Volume Control**. In the **Master Volume** panel, you can use the slide bars to adjust the volume level or click **Mute** at the bottom of the panel.

Modem

This section describes how to connect and disconnect the internal modem to and from a telephone jack.

NOTE: *The internal modem does not support voice functions. All data and fax functions are supported.*

CAUTIONS: 1. *In case of a lightning storm, unplug the modem cable from the telephone jack.*

2. *Do not connect the modem to a digital telephone line. A digital line will damage the modem.*

Region selection

Telecommunication regulations vary from one region to another, so you will need to make sure the internal modem's settings are correct for the region in which it will be used.

To select a region, follow the steps below.

1. Click **start**, point to **All Programs**, point to **TOSHIBA Internal Modem** and click **Region Select Utility**.

   NOTE: *Do not use the Country/Region Select function in the Modem setup utility in the Control Panel if the function is available. If you change the Country/Region in the Control Panel, the change may not take effect.*

2. The Region Selection icon will appear in the Windows Task Bar.

Figure 4-15 The Region Selection icon

3. Click the icon with the primary mouse button to display a list of regions that the modem supports. A sub menu for telephony location information will also be displayed. A check will appear next to the currently selected region and telephony location.
4. Select a region from the region menu or a telephony location from the sub-menu.
   - When you click a region it becomes the modem's region selection, and the New Location for telephony will be set automatically.
   - When you select a telephony location, the corresponding region is automatically selected and it becomes the modem's current region setting.

Properties menu

Click the icon with the secondary mouse button to display the following menu.

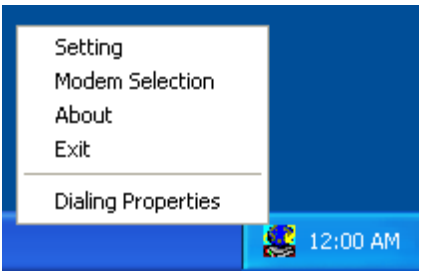


Figure 4-16 The menu list

Setting

You can enable or disable the following settings:

AutoRun Mode

The Region Select utility starts automatically when you start up the operating system.

Open the Dialing Properties dialog box after selecting region.

The dialing properties dialog box will be displayed automatically after you select the region.

Location list for region selection.

A submenu appears displaying location information for telephony.

Open dialog box, if the modem and Telephony Current Location region code do not match.

A warning dialog box is displayed if current settings for region code and telephony location are incorrect.

Modem Selection

If the computer cannot recognize the internal modem, a dialog box is displayed. Select the COM port for your modem to use.

Dialing Properties

Select this item to display the dialing properties.

> ***CAUTION:*** *If you are using the computer in Japan, the Telecommunications Business Law requires that you select Japan region mode. It is illegal to use the modem in Japan with any other selection.*

Connecting

To connect the internal modem cable, follow the steps below.

1. Plug one end of the modular cable into the modem jack.
2. Plug the other end of the modular cable into a telephone jack.

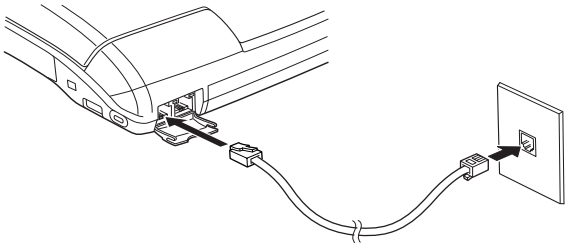


Figure 4-17 Connecting the internal modem

> ***CAUTION:*** *Do not pull on the cable or move the computer while the cable is connected.*
>
> ***NOTE:*** *If you use a storage device such as a DVD-ROM drive, CD-RW/DVD-ROM drive or HDD connected to a 16-bit PC card, you might experience the following modem problems:*
>
> *1. Modem speed is slow or communication is interrupted.*
> *2. Skips may occur in sound.*

Disconnecting

To disconnect the internal modem cable, follow the steps below.

1. Pinch the lever on the connector in the telephone jack and pull out the connector.
2. Disconnect the cable from the computer in the same manner.

Wireless communications

The computer's wireless communication function supports both wireless LAN and Bluetooth devices.

Wireless LAN

The wireless LAN is compatible with other LAN systems based on Direct Sequence Spread Spectrum radio technology that complies with IEEE 802.11 wireless LAN standard (Revision B). It supports the following features:

- Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s.
- Frequency Channel Selection (2.4 GHz)
- Roaming over multiple channels
- Card Power Management
- Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit RC4 encryption algorithm as defined in the IEEE 802.11 standard on wireless LANs.

Wake-up on LAN does not function on a wireless LAN.

Bluetooth wireless technology

Bluetooth™ wireless technology eliminates the need for cables between electronic devices such as desktop computers, printers and mobile phones.

You cannot use the built-in Bluetooth functions and an optional Bluetooth PC card simultaneously.

Bluetooth wireless technology has the following features:

Worldwide operation

The Bluetooth radio transmitter and receiver operates in the 2.45 GHz band, which is license-free and compatible with radio systems in most countries in the world.

Radio links

You can easily establish links between two or more devices. The link is maintained even if the devices are not within line of sight.

Security

Two advanced security mechanisms ensure a high level of security:

- Authentication prevents access to critical data and makes it impossible to falsify the origin of a message.
- Encryption prevents eavesdropping and maintains link privacy.

Wireless communication switch

You can enable or disable wireless LAN and Bluetooth functions, with the on/off switch. No transmissions are sent or received when the switch is off. Slide the switch toward the back of the computer to turn it on and toward the front of the computer to turn it off.

> ***CAUTION:*** *Set the switch to off in airplanes and hospitals. Check the indicator. It will stop glowing when the wireless communication function is off.*

Wireless communication Indicator

The wireless communication indicator indicates the status of the wireless communication functions.

Indicator status	Indication
Indicator off	Wireless communication switch is set to off. Automatic power down because of overheating. Power malfunction
Indicator glows	Wireless communication switch is on. Wireless LAN or Bluetooth is turned on by an application.

If you used the Task Bar to disable W-LAN, restart the computer or follow the procedures below to enable the system to recognize W-LAN. Open or click the following: **start**, **Control Panel**, **System**, **Hardware Device Manager**, **Network adapters**, **TOSHIBA Wireless LAN Mini PCI Card** and **enable**.

LAN

The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T) and Fast Ethernet LAN (100 megabits per second, 100BASE-Tx). This section describes how to connect/disconnect to a LAN.

> ***CAUTION:*** *Do not install or remove an optional memory module while Wake-up on LAN is enabled.*
>
> ***NOTE:*** *The Wake-up on LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*

Connecting LAN cable

> ***CAUTION:*** *The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.*

If you are using Fast Ethernet LAN (100 megabits per second, 100BASE-TX), be sure to connect with a CAT5 cable. You cannot use a CAT3 cable.

If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with either a CAT5 or a CAT3.

To connect the LAN cable, follow the steps below.

1. Turn off the power to the computer and to all external devices connected to the computer.
2. Plug one end of the cable into the LAN jack. Press gently until you hear the latch click into place.

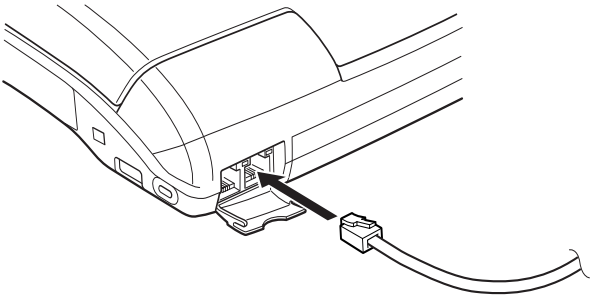


Figure 4-18 Connecting the LAN cable

3. Plug the other end of the cable into a LAN hub connector. Check with your LAN administrator before connecting to a hub.

NOTE: When the computer is exchanging data with the LAN, the **LAN Active** *indicator glows yellow. When the computer is connected to a LAN hub but is not exchanging data, the* **Link** *indicator glows green.*

Disconnecting LAN cable

To disconnect the LAN cable, follow the steps below.

***CAUTION:** Make sure the LAN Active indicator (yellow LED) is out before you disconnect the computer from the LAN.*

1. Pinch the lever on the connector in the computer's LAN jack and pull out the connector.
2. Disconnect the cable from the LAN hub in the same manner. Check with your LAN administrator before disconnecting from the hub.

Cleaning the computer

To help ensure long, trouble-free operation, keep the computer free of dust and use care with liquids around the computer.

- Be careful not to spill liquids into the computer. If the computer does get wet, turn the power off immediately and let the computer dry completely before you turn it on again.
- Clean the computer using a slightly damp (with water) cloth. You can use glass cleaner on the display. Spray a small amount of cleaner on a soft, clean cloth and wipe the screen gently with the cloth.

***CAUTION:** Never spray cleaner directly onto the computer or let liquid run into any part of it. Never use harsh or caustic chemical products to clean the computer.*

Moving the computer

The computer is designed for rugged durability. However, a few simple precautions taken when moving the computer will help ensure trouble-free operation.

- Make sure all disk activity has ended before moving the computer. Check the **Fixed HDD/ODD** and **TOSHIBA Style Bay** indicators on the computer.
- If a CD/DVD is in the drives, remove it. Also make sure the drawer is securely closed.
- Turn off the power to the computer.
- Disconnect the AC adaptor and all peripherals before moving the computer.
- Close the display. Do not pick up the computer by its display panel.
- Close all port covers.
- Use the carrying case when transporting the computer.

Heat dispersal

To protect from overheating, the CPU has an internal temperature sensor. If the computer's internal temperature rises to a certain level, the cooling fan is turned on or the processing speed is lowered. You can select whether to control the CPU temperature by turning on the fan first, then if necessary, lowering the CPU speed. Or, by lowering the CPU speed first, then if necessary, turning on the fan. Use the *Cooling Method* item of the *Power Save Mode* window in TOSHIBA Power Saver.

Maximum Performance	Turn on the fan first, then if necessary, lower the CPU processing speed.
Performance	Use a combination of the fan and lowering the CPU processing speed.
Battery optimized	Lower the CPU processing speed first, then if necessary turn on the fan.

When the CPU temperature falls to a normal range, the fan is turned off and the CPU operation returns to standard speed.

> ***NOTE:*** *If the CPU temperature reaches an unacceptably high level with either setting, the system automatically shuts down to prevent damage. Data in memory will be lost.*

TOSHIBA Remote Control

This section describes how to use the TOSHIBA Remote Control and gives safety precautions for the batteries.

CAUTIONS: *1. Do not drop the TOSHIBA Remote Control or expose it to strong impact.*

2. Do not store the TOSHIBA Remote Control in places exposed high heat or high humidity.

3. Do not expose the TOSHIBA Remote Control to water.

4. Do not disassemble the TOSHIBA Remote Control.

Operating conditions

Note the following conditions on effective operation of the TOSHIBA Remote Control.

1. You can use the TOSHIBA Remote Control at a distance of up to five meters and within 30 degrees from center of the computer's Remote Control port.
2. Point the TOSHIBA Remote Control toward the computer's Remote Control port when you press a button on the controller.
3. The TOSHIBA Remote Control will not work unless the computer is powered on while the AC adaptor is connected. This is a precaution to prevent the TOSHIBA Remote Control from accidently turning on the computer's power while you are transporting them.

   NOTE: *If you disconnect the AC adaptor after turning on the computer, you can still use the TOSHIBA Remote Control.*

4. You cannot use the TOSHIBA Remote Control when the computer is exchanging data with another device through the infrared port.
5. The TOSHIBA Remote Control might not work if the infrared element is exposed to direct sunlight or fluorescent light when you try to use it.
6. You cannot use another remote controller. Use only the TOSHIBA Remote Control that came with the computer.
7. If you cannot use the TOSHIBA Remote Control within the limits of its range, change the battery.

Changing the battery

To install a battery, follow the steps below.

NOTE: *Use only CR2025 batteries.*

1. Slide the release latch and pull the battery tray out.

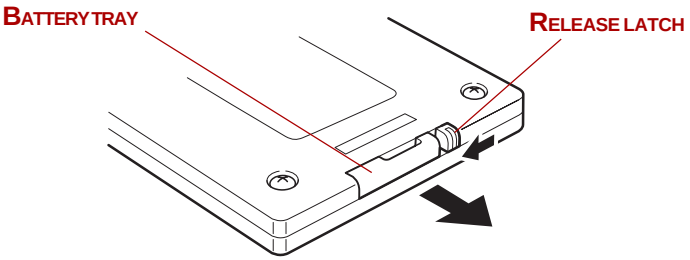


Figure 4-21 Removing the battery tray

2. Seat a battery in the tray.

CAUTION: *Make sure the positive pole, marked by "+" faces up.*

3. Insert the tray and press to secure the latch.

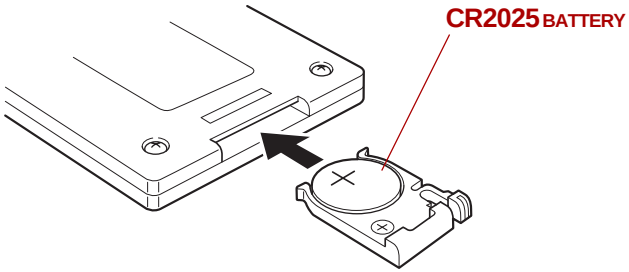


Figure 4-22 Inserting the battery tray

CAUTION: *The TOSHIBA Remote Control battery is a lithium battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations.*

Battery safety precautions

Mishandling of batteries can cause death, serious injury or property damage. Carefully observe the following advisories:

Danger: Indicates an imminently hazardous situation, which could result in death or serious injury, if you do not follow instructions.

Warning: Indicates a potentially hazardous situation, which could result in death or serious injury, if you do not follow instructions.

Caution: Indicates a potentially hazardous situation, which if not avoided, may result in moderate or minor injury or property damage.

Danger

1. Never try to charge the battery.

   Attempts to charge the battery can cause the electrolyte to boil, generate gas and increase internal pressure in the battery. In this case, the battery can become excessively hot, leak, catch fire or explode.

2. Never install the battery in reverse polarity.

   The battery will have an abnormal reaction, and the battery can become excessively hot, leak, catch fire or explode.

3. Never short-circuit the battery by contacting the terminals with a metal object.

   A short-circuit can cause fire or otherwise damage the battery and possibly cause injury. To avoid accidental short-circuit, always wrap the battery in plastic and cover the terminals with electrical tape when storing or disposing of the battery.

4. Never solder anything directly to the battery.

   The heat from soldering can damage the insulator and other parts of the battery, and the battery can become excessively hot, leak, catch fire or explode.

5. Never try to dispose of the battery by burning or expose it to a heating device such as a microwave oven.

   The battery could explode and cause injury.

6. Never try to disassemble, repair or otherwise tamper with a battery.

   The battery will overheat and ignite. Leakage of caustic alkaline solution or other electrolytic substances will cause fire or injury, possibly resulting in death or serious physical injury.

7. Never puncture the battery with a nail or other sharp object. Never strike it with a hammer or other object. Never step on it.

8. Never let a battery become wet.

   A wet battery will overheat, ignite or rupture possibly resulting in death or serious injury.

9. Never subject a battery to heat, such as storage near a heat source.

   Exposure to heat can cause the battery to ignite, explode or leak caustic liquid and cause death or serious injury. It could also fail or malfunction causing data loss.

10. Never expose the battery to abnormal shock, vibration or pressure.

    The battery's internal protective device will fail, causing it to overheat, explode, ignite or leak caustic liquids possibly resulting in death or serious injury.

Warning

1. Never let liquid from the batteries contact your mouth.

   If battery liquid does contact your mouth, rinse your mouth amply with clean water and seek medical attention immediately.

2. Never store the battery in places exposed direct sunlight, high heat or high humidity. The battery can become excessively hot, leak, catch fire or explode. Battery performance and life will also be degraded.

3. Never allow caustic electrolyte fluid leaked from a battery to contact your eyes, skin or clothing.

   If caustic electrolyte fluid should contact your eyes, immediately wash your eyes with large amounts of running water and seek medical attention, to help prevent eye damage. It electrolyte fluid should contact your skin immediately wash it under running water to prevent rash. If it contacts your clothes, promptly remove them to prevent the fluid from contacting your skin or eyes.

4. Keep the battery out or reach of infants and children.

   It can cause injury. If a battery is swallowed, immediately seek medical attention.

Caution

1. If you notice liquid or a foul odor around the battery, move the battery away from any source of fire immediately. The electrolyte is flammable.
2. Never dispose of batteries with normal trash.

   Bring them to your TOSHIBA dealer or to another recycling center to save resources and prevent environmental damage. Cover the terminals with electrical tape to prevent short-circuits, which could cause the battery to ignite or rupture.
3. Use only coin-type manganese dioxide lithium primary batteries (3.0V).

   Never use conventional batteries, such as silver oxide batteries (1.55V), alkaline button batteries (1.5V) or air-zinc batteries (1.4V).

The Keyboard

The computer's keyboard layouts are compatible with a 101/102-key enhanced keyboard. By pressing some keys in combination, all the 101/102-key keyboard functions can be executed on the computer.

The number of keys on your keyboard depends on which country/region's keyboard layout your computer is configured with. Keyboards for numerous languages are available.

There are five types of keys: typewriter keys, keypad overlay, function keys, soft keys and cursor control keys.

Typewriter keys

The typewriter keys, produce the upper- and lower-case letters, numbers, punctuation marks, and special symbols that appear on the screen.

There are some differences, however, between using a typewriter and using a computer keyboard:

- Letters and numbers produced in computer text vary in width. Spaces, which are created by a "space character," may also vary depending on line justification and other factors.
- The lowercase l (el) and the number 1 (one) are not interchangeable on computers as they are on a typewriter.
- The uppercase O (oh) and the 0 (zero) are not interchangeable.
- The **Caps Lock** function key locks only the alphabetic characters in uppercase while the shift lock on a typewriter places all keys in the shifted position.
- The **Shift** keys, the **Tab** key, and the **BkSp** (backspace) key perform the same function as their typewriter counterparts but also have special computer functions.

F1 … F12 function keys

The function keys, not to be confused with **Fn**, are the 12 keys at the top of your keyboard. These keys function differently from other keys.

F1 through **F12** are called function keys because they execute programmed functions when pressed. Used in combination with the **Fn** key, keys marked with icons execute specific functions on the computer. See the section, *Soft keys: Fn key combinations*, in this chapter. The function executed by individual keys depends on the software you are using.

Soft keys: Fn key combinations

The **Fn** (function) is unique to TOSHIBA computers and is used in combination with other keys to form soft keys. Soft keys are key combinations that enable, disable or configure specific features.

> ***NOTE:*** *Some software may disable or interfere with soft-key operations. Soft-key settings are not restored by the Standby feature.*

Emulating keys on enhanced keyboard

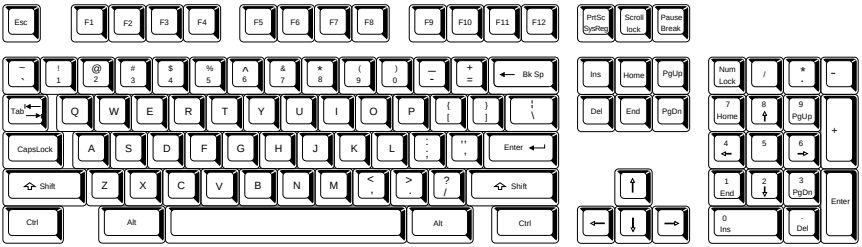
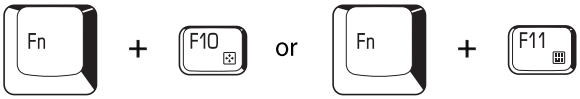


Figure 5-1 A 101-key enhanced keyboard layout

The keyboard is designed to provide all the features of the 101-key enhanced keyboard, shown in figure 5-1. The 101/102-key enhanced keyboard has a numeric keypad and scroll lock key. It also has additional **Enter** and **Ctrl** keys to the right of the main keyboard. Since the keyboard is smaller and has fewer keys, some of the enhanced keyboard functions must be simulated using two keys instead of one on the larger keyboard.

Your software may require you to use keys that the keyboard does not have. Pressing the **Fn** key and one of the following keys simulates the enhanced keyboard's functions.



Press **Fn + F10** or **Fn + F11** to access the integrated keypad. When activated, the keys with gray markings on the bottom edge become numeric keypad keys (**Fn + F11**) or cursor control keys (**Fn + F10**). Refer to the *Keypad overlay* section in this chapter for more information on how to operate these keys. The power on default for both settings is off.

Press **Fn** + **F12** (**ScrLock**) to lock the cursor on a specific line. The power on default is off.

Press **Fn** + **Enter** to simulate **Enter** on the enhanced keyboard's numeric keypad.

Press **Fn** + **Ctrl** to simulate the enhanced keyboard's right **Ctrl** key.

Hotkeys

Hotkeys (**Fn** + a function or Esc key) let you enable or disable certain features of the computers.

Sound mute: Pressing **Fn** + **Esc** in a Windows environment turns sound on or off. When you press these hotkeys, the current setting will change and be displayed as an icon.

Instant security: Press **Fn** + **F1** to blank the screen to prevent others from accessing your data. To restore the screen and original settings, press any key or press the cPad/TouchPad. If a screensaver password is registered, a dialog box will appear. Enter the screensaver password and click **OK**. If no password is set, the screen will be restored when you press any key or press the cPad/TouchPad.

Power save mode: Pressing **Fn** + **F2** changes the power save mode.

If you press **Fn** + **F2** in a Windows environment, the Power Save Mode is displayed in a dialog box similar to the one below. Continue holding down **Fn** and press **F2** again to change the setting. You can also change this setting through the *Plugged in* or *Running on batteries* item of the *Power Saver Properties* window in Power Saver.

Standby: When you press **Fn** + **F3**, the computer enters Standby. To avoid entering Standby unexpectedly, a dialog box appears for verification. However, if you select the check box, it will not appear in the future.

Hibernation: When you press **Fn** + **F4**, the computer enters Hibernation. To avoid entering Hibernation unexpectedly, a dialog box appears for verification. However, if you select the check box, it will not appear in the future.

Display selection: Press **Fn** + **F5** to change the active display device. When you press these hot keys, a dialog box appears. Only selectable devices will be displayed. Hold down **Fn** and press **F5** again to change the device. When you release **Fn** and **F5**, the selected device will change. If you hold down these hotkeys for five seconds the selection will return to **LCD**.

Display Brightness: Pressing **Fn** + **F6** decreases the display brightness in decrements. When you press these hotkeys, the current setting will be displayed for two seconds by an icon. You can also change this setting through the *Monitor brightness* item of the *Power Save Mode* window in Power Saver.

Display Brightness: Pressing **Fn** + **F7** increases the display brightness in increments. When you press these hotkeys, the current setting will be displayed for two seconds by a pop-up icon. You can also change this setting through the *Monitor brightness* item of the *Power Save Mode* window in Power Saver.

NOTES: 1. *The brightness level is always set at the maximum value for about 18 seconds, when the LCD turns on. After 18 seconds, the brightness level will appear at the Power Save Mode setting or you can change it manually.*

2. *Display clarity increases with the brightness level.*

Wireless setting: If your computer has both Bluetooth and wireless LAN functions, you can press **Fn** + **F8** to select which type of wireless communication you want to use. When you press these hotkeys, a dialog box will appear. Continue holding down **Fn** and press **F8** to change the setting. If wireless communication is turned off, **`Disabled Wireless Communication Switch`** will be displayed.

NOTE: *If no wireless communication device is installed, no dialog box will not appear.*

cPad/TouchPad: Pressing **Fn** + **F9** in a windows environment enables or disables the cPad/TouchPad function. When you press these hotkeys, the current setting will change and be displayed as an icon.

Fn Sticky key

You can use the TOSHIBA Accessibility Utility to make the **Fn** key sticky, that is, you can press it once, release it, and they press an "**F number**" key. To start the TOSHIBA Accessibility Utility, click **start**, point to **All Programs**, point to **TOSHIBA Utilities** and click **Accessibility**.

Windows special keys

The keyboard provides two keys that have special functions in Windows : one activates the **start** menu and the other has the same function as the secondary mouse button.

This key activates the Windows **start** menu.

This key has the same function as the secondary mouse button.

Keypad overlay

Your computer's keyboard does not have an independent numeric keypad, but its numeric keypad overlay functions like one.

The keys in the center of the keyboard with gray letters make up the numeric keypad overlay. The overlay provides the same functions as the numeric keypad on the 101/102-key enhanced keyboard in figure 5-2.

Turning on the overlays

The numeric keypad overlay can be used for numeric data input or cursor and page control.

Arrow mode

To turn on the Arrow mode, press **Fn** + **F10**. The Arrow mode **F10** indicator lights. Now try cursor and page control using the keys shown in figure 5-2. Press **Fn** + **F10** again to turn off the overlay.

Numeric mode

To turn on the Numeric mode, press **Fn** + **F11**. The Numeric mode **F11** indicator lights. Now try numeric data entry using the keys in figure 5-2. Press **Fn** + **F11** again to turn off the overlay.

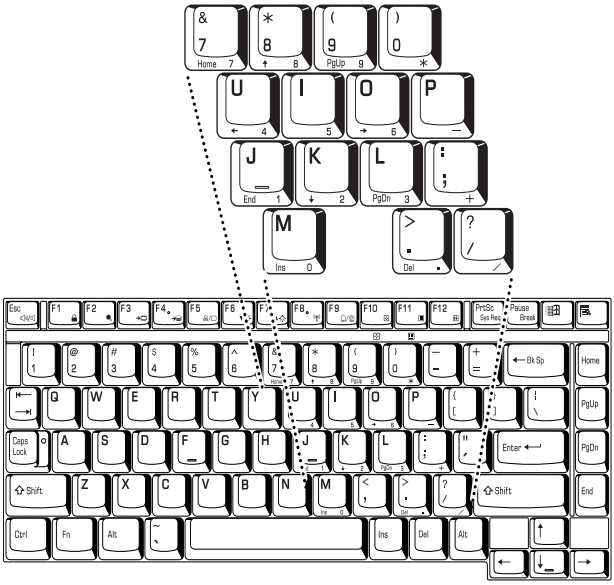


Figure 5-2 The numeric keypad overlay

Temporarily using normal keyboard (overlay on)

While using the overlay, you can temporarily access the normal keyboard without turning off the overlay:

1. Hold **Fn** and press any other key. All keys will operate as if the overlay were off.
2. Type upper-case characters by holding **Fn** + **Shift** and pressing a character key.
3. Release **Fn** to continue using the overlay.

Temporarily using overlay (overlay off)

While using the normal keyboard, you can temporarily use the keypad overlay without turning it on:

1. Press and hold down **Fn**.
2. Check the keyboard indicators. Pressing **Fn** turns on the most recently used overlay. If the Numeric mode indicator lights, you can use the overlay for numeric entry. If the Arrow mode indicator lights, you can use the overlay for cursor and page control.
3. Release **Fn** to return to normal keyboard operation.

Temporarily changing modes

If the computer is in **Numeric mode**, you can switch temporarily to **Arrow mode** by pressing a shift key.

If the computer is in **Arrow mode**, you can switch temporarily to **Numeric mode** by pressing a shift key.

Generating ASCII characters

Not all ASCII characters can be generated using normal keyboard operation. But, you can generate these characters using their ASCII codes.

With the overlay on:

1. Hold down **Alt**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt**, and the ASCII character appears on the display screen.

With the overlay off:

1. Hold down **Alt** + **Fn**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt** + **Fn**, and the ASCII character appears on the display screen.

Chapter 6

Power and Power-Up Modes

The computer's power resources include the AC adaptor and internal batteries. This chapter gives details on making the most effective use of these resources including charging and changing batteries, tips for saving battery power, and power up modes.

Power conditions

The computer's operating capability and battery charge status are affected by the power conditions: whether an AC adaptor is connected, whether a battery is installed and what the charge level is for the battery.

Table 6-1 Power conditions

		Power on	Power off (no operation)
AC adaptor connected	Main battery fully charged	• Operates • No charge • LED: **Battery** green **DC IN** green	• No charge • LED: **Battery** green **DC IN** green
	Main battery partially charged or no charge	• Operates • Charge*1 • LED: **Battery** orange **DC IN** green	• Quick charge *1 • LED: **Battery** orange **DC IN** green
	No main battery installed	• Operates • No charge • LED: **Battery** off **DC IN** green	• No charge • LED: **Battery** off **DC IN** green

Table 6-1 Power conditions continued

		Power on	Power off (no operation)
AC adaptor connected	2nd battery fully charged	• Operates • No charge • LED: **2nd battery** green **DC IN** green	•No charge •LED: **2nd battery** green **DC IN** green
	2nd battery partially charged or no charge	• Operates • Charge*2 • LED: **2nd battery** orange **DC IN** green	• Quick charge *2 • LED: **2nd battery** orange **DC IN** green
	No 2nd battery installed	• Operates • No charge • LED: **2nd battery** off **DC IN** green	• No charge • LED: **2nd battery** off **DC IN** green
AC adaptor not connected	Main battery charge is above low battery trigger point	• Operates • LED: **Battery** off **DC IN** off	
	Main battery charge is below low battery trigger point	• Operates • LED: **Battery** flashes orange **DC IN** off	
	Main battery charge is exhausted	Computer shuts down *3	
	No main battery installed	• No operation *4 • LED: **Battery** off **DC IN** off	

Table 6-1 Power conditions continued

		Power on	Power off (no operation)
AC adaptor not connected	2nd battery charge is above low battery trigger point	• Operates • LED: **2nd battery** off **DC IN** off	
	2nd battery charge is below low battery trigger point	• Operates • LED: **2nd battery** flash orange **DC IN** off	
	2nd battery charge is exhausted	Computer shut down *3	
	No 2nd battery is installed	• No operation *5 • LED: **2nd battery** off **DC IN** off	

NOTE: **2nd battery** *indicator refers to the* **TOSHIBA Style Bay** *indicator when a secondary battery is installed.*

*1 When the secondary battery is not charging.

*2 When the main battery is not charging

*3 For the computer to shut down in hibernation mode, the hibernation feature must be enabled in two places in TOSHIBA Power Saver: the Hibernate window and the Battery Alarm item of the Alarm window. If a main battery and a secondry battery are installed, the computer does not shut down until the charge in both batteries is exhausted.

*4 When no secondary battery is installed

*5 When no main battery is installed

NOTE: *When batteries are charged, the main battery is charged first. When it is fully charged, the secondary battery is charged.*

Power indicators

As shown in the above table, the **Battery, TOSHIBA Style Bay, DC IN** and **Power** indicators on the system indicator alert you to the computer's operating capability and battery charge status.

Battery indicators

Check the **Battery** indicator to determine the status of the main battery and the **TOSHIBA Style Bay** indicator to determine the status of the secondary battery. The following indicator lights indicate the battery status:

Flashing orange	The battery charge is low. The AC adaptor must be connected to recharge the battery.
Orange	Indicates the AC adaptor is connected and charging the battery.
Green	Indicates the AC adaptor is connected and the battery is fully charged.
No light	Under any other conditions, the indicator does not light.

NOTE: *If the battery becomes too hot while it is being charged, the charge will stop and the battery indicator will go out. When the battery's temperature falls to a normal range, charge will resume. This occurs whether the computer's power is on or off.*

DC IN indicator

Check the **DC IN** indicator to determine the power status with the AC adaptor connected:

Green	Indicates the AC adaptor is connected and supplying proper power to the computer.
Flashing orange	Indicates a problem with the power supply. Plug the AC adaptor into another outlet. If it still does not operate properly, see your dealer.
No light	Under any other conditions, the indicator does not light.

Power indicator

Check the **Power** indicator to determine the power status:

Green	Indicates power is being supplied to the computer and the computer is turned on.

Blinking orange	Indicates power is being supplied to the computer while the computer is in Standby mode. The indicator turns on for one second and off for two seconds.
No light	Under any other conditions, the indicator does not light.

Battery types

The computer has three types of batteries:

- Battery packs – main and secondary (option)
- Secondary battery (option)
- Real Time Clock (RTC) battery

Main battery

When the AC adaptor is not connected, the computer's main power source is a removable lithium ion battery pack, also referred to in this manual as the main battery. You can purchase additional battery packs for extended use of the computer away from an AC power source.

Before you remove the battery pack, set the computer to Hibernation mode or save your data and shut down the computer. Do not change the battery pack while the AC adaptor is connected.

CAUTIONS:

1. *The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
2. *Do not remove the battery pack while the computer is in Standby mode. Data is stored in RAM, so if the computer loses power it will be lost. When the computer is powered off in Standby mode, and the AC adaptor is not connected, the main battery pack and optional secondary battery pack supply power to maintain data and program in memory. If the battery pack(s) is completely discharged, Standby mode does not function and the computer loses all data in memory.*

To ensure that the battery pack maintains its maximum capacity, operate the computer on battery power at least once a month until the battery pack is fully discharged. Refer to *Extending battery life* in this chapter for procedures. If the computer is continuously operated on AC power through an AC adaptor for an extended period, more than a month, the battery may fail to retain a charge. It may not function efficiently over the expected life of the battery and the **Battery** indicator may not indicate a low-battery condition.

Secondary battery (option)

An optional secondary battery can be installed in the TOSHIBA Style Bay to increase your battery operating time. Note the caution on Standby mode in the previous section *Main battery*.

> ***CAUTION:*** *The secondary battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*

Real Time Clock battery

The Real Time Clock (RTC) battery provides power for the internal real time clock and calendar. It also maintains the system configuration.

If the RTC battery becomes completely discharged, the system loses this data and the real time clock and calendar stop working. The following message appears when you turn on the power:

```
**** Bad RTC battery ****
Press [F1] key for default setting.
```

> ***CAUTION:*** *The computer's RTC battery is a nickel metal hydride (NiMH) battery and should be replaced only by your dealer or by a TOSHIBA service representative. The battery can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations.*

Care and use of the battery pack

The battery pack is a vital component of portable computing. Taking proper care of it will help ensure longer operating time on battery power as well as a longer life for your battery pack. Follow the instructions in this section carefully to ensure safe operation and maximum performance.

Safety precautions

Mishandling of batteries can cause death, serious injury or property damage. Carefully observe the following advisories:

Danger: Indicates an imminently hazardous situation, which could result in death or serious injury, if you do not follow instructions.

Warning: Indicates a potentially hazardous situation, which could result in death or serious injury, if you do not follow instructions.

Caution: Indicates a potentially hazardous situation, which if not avoided, may result in moderate or minor injury or property damage.

Note: Provides important information.

Danger

1. Never try to dispose of the battery pack by burning or expose it to a heating device such as a microwave oven. The battery pack could explode and cause bodily injury.
2. Never try to disassemble, repair or otherwise tamper with a battery pack. The battery pack will overheat and ignite. Leakage of caustic alkaline solution or other electrolytic substances will cause fire or injury, possibly resulting in death or serious injury.
3. Never short-circuit the battery pack by contacting the terminals with a metal object. A short-circuit can cause fire or otherwise damage the battery pack and possibly cause injury. To avoid accidental short-circuit, always wrap the battery pack in plastic and cover the terminals with electrical tape when storing or disposing of the battery pack.
4. Never puncture the battery pack with a nail or other sharp object. Never strike it with a hammer or other object. Never step on it.
5. Never try to charge the battery pack in any manner other than that described in the user's manual. Never connect the battery pack to a plug socket or to a automobile's cigarette lighter socket. It may rupture or ignite.
6. Use only the battery pack supplied with the computer or other device or an battery pack approved by the computer or device's manufacturer. Battery packs have different voltages and terminal polarities. Use of an improper battery could cause smoke, fire or rupture of the battery pack.
7. Never subject a battery pack to heat, such as storage near a heat source. Exposure to heat can cause the battery pack to ignite, explode or leak caustic liquid and cause death or serious injury. It could also fail or malfunction causing data loss.

8. Never expose the battery pack to abnormal shock, vibration or pressure. The battery pack's internal protective device will fail, causing it to overheat, explode, ignite or leak caustic liquids possibly resulting in death or serious injury.
9. Never let a battery pack become wet. A wet battery pack will overheat, ignite or rupture possibly resulting in death or serious injury.

Warning

1. Never allow caustic electrolyte fluid leaked from a battery pack to contact your eyes, skin or clothing. If caustic electrolyte fluid should contact your eyes, immediately wash your eyes with large amounts of running water and seek medical attention, to help prevent eye damage. It electrolyte fluid should contact your skin immediately wash it under running water to prevent rash. If it contacts your clothes, promptly remove them to prevent the fluid from contacting your skin or eyes.
2. Immediately turn off the power, disconnect the AC adaptor and remove the battery if any of the following events are observed in the battery pack: offensive or unusual odor, excessive heat, discoloration or deformation. Never use the computer again until it has been checked by a TOSHIBA service provider. It might generate smoke or fire, or the battery pack might rupture.
3. Make sure the battery is securely installed in the computer before attempting to charge the battery pack. Improper installation could generate smoke or fire, or cause the battery pack to rupture.
4. Keep the battery pack out or reach of infants and children. It can cause injury.

Caution

1. Never continue to use a battery pack after its recharging capacity has become impaired, or after the display of a warning message indicating that the battery pack's power is exhausted. Continued use of an exhausted or impaired battery pack could cause the loss of data.
2. Never dispose of battery packs with normal trash. Bring them to your TOSHIBA dealer or to another recycling center to save resources and prevent environmental damage. Cover the terminals with electrical tape to prevent short-circuits, which could cause the battery pack to ignite or rupture.
3. Use only battery packs recommended by TOSHIBA as replacements.
4. Always make sure the battery pack is installed correctly and securely. Otherwise, a battery pack could fall out and possibly cause injury.

5. Charge the battery pack only in an ambient temperature between 5 and 35 degrees Celsius. Otherwise, the electrolyte solution might leak, battery pack performance might deteriorate and the battery life might be shortened.
6. Be sure to monitor the remaining battery power. If the battery pack and real time clock battery discharge completely, Standby and Suspend will not function and data in memory will be lost. Also, the computer might register an incorrect time and date. In this case, connect the AC adaptor to recharge the batteries.
7. Never install or remove the battery pack without first turning off the power and disconnecting the AC adaptor. Never remove the battery pack while the computer is in Suspend or Standby mode. Data will be lost.

Note

1. Never remove the battery pack while the Wake-up on LAN function is enabled. Data will be lost. Before you remove a battery pack, disable the Wake-up on LAN function.
2. To ensure the battery pack maintains maximum capacity, operate the computer on battery power once a week until the battery pack is fully discharged. Refer to the section *Extending battery life* in this chapter for procedures. If the computer is continuously operated on AC power for an extended period, more than a week, the battery might fail to retain a charge. It might not function efficiently over the expected life of the battery pack and the **Battery** indicator might not indicate a low-battery condition.
3. After the battery pack is charged, avoid leaving the AC adaptor connected and the computer turned off for more than a few hours at a time. Continuing to charge a fully-charged battery pack can damage the battery.

Charging the batteries

When the power in the battery pack becomes low, the **Battery** indicator flashes orange indicating that only a few minutes of battery power remain. If you continue to use the computer while the **Battery** indicator flashes, the computer enables Hibernation mode (so you don't lose data) and automatically turns off.

> ***NOTE:*** *The computer enters Hibernate mode only if Hibernation is enabled in two places in TOSHIBA Power Saver: the Hibernate window and the Battery Alarm item of the Alarm window.*

You must recharge a battery pack when it becomes discharged.

Procedures

To recharge a battery pack while it is installed in the computer, connect the AC adaptor to the **DC IN** socket and plug the other end into a working outlet.

The **Battery** indicator glows orange when the battery is being charged.

> ***CAUTION:*** *Use only the computer connected to an AC power source or the optional TOSHIBA Battery charger to charge the battery pack. Never attempt to charge the battery pack with any other charger.*

Time

The following table shows the approximate time required to fully charge a discharged battery.

	Charging time (hours)	
Battery type	**Power on**	**Power off**
Main battery pack	10 or longer	about 3
Secondary battery pack	7 or longer	about 2.5
RTC battery	15	Doesn't charge

> ***NOTE:*** *The charging time when the computer is on is affected by ambient temperature, the temperature of the computer and how you use the computer. If you make heavy use of external devices, for example, the battery might scarcely charge at all during operation. Refer also to the section* Maximizing battery operating time.

Battery charging notice

The battery may not charge right away under the following conditions:

- The battery is extremely hot or cold. If the battery is extremely hot, it might not charge at all. To ensure the battery charges to its full capacity, charge the battery at room temperature of 10° to 30°C (50° to 88°F).
- The battery is nearly completely discharged. Leave the AC adaptor connected for a few minutes and the battery should begin charging.

The **Battery** indicator may show a rapid decrease in battery operating time when you try to charge a battery under the following conditions:

- The battery has not been used for a long time.
- The battery has completely discharged and been left in the computer for a long time.

- A cool battery is installed in a warm computer.

In such case, follow the steps below.

1. Fully discharge the battery by leaving it in the computer with the power on until the power automatically shuts off.
2. Plug in the AC adaptor.
3. Charge the battery until the **Battery** indicator glows green.

Repeat these steps two or three times until the battery recovers normal capacity.

> ***NOTE:*** *Leaving the AC adaptor connected will shorten battery life. At least once a month, run the computer on battery power until the battery is fully discharged, then recharge the battery.*

Monitoring battery capacity

Remaining battery power can be monitored in the *Power Save Modes* window in Power Saver or on the right side of the Sub LCD.

> ***NOTES:*** *1. Wait at least 16 seconds after turning on the computer before trying to monitor the remaining operating time. The computer needs this time to check the battery's remaining capacity and to calculate the remaining operating time, based on the current power consumption rate and remaining battery capacity. The actual remaining operating time may differ slightly from the calculated time.*
>
> *2. With repeated discharges and recharges, the battery's capacity will gradually decrease. Therefore, an often used, older battery will not operate for as long as a new battery even when both are fully charged. In this case, Power Save Modes window in TOSHIBA Power Saver will indicate a 100% charge for both the old and new battery, but the displayed estimated time remaining will be shorter for the older battery.*

Maximizing battery operating time

A battery's usefulness depends on how long it can supply power on a single charge.

How long the charge lasts in a battery depends on:

- How you configure the computer (for example, whether you enable battery-power saving options). The computer provides a battery save mode, which can be set in TOSHIBA Power Saver, to conserve battery power. This mode has the following options:
  - Processor speed
  - Monitor brightness
  - System standby
  - System hibernate
  - Turn off monitor
  - Turn off hard disks
- How often and how long you use the hard disk, CD/DVD-ROM and the diskette drive.
- How much charge the battery contained to begin with.
- How you use optional devices, such as a PC card, to which the battery supplies power.
- Enabling Standby mode conserves battery power if you are frequently turning the computer off and on.
- Where you store your programs and data.
- Closing the display when you are not using the keyboard saves power.
- Operating time decreases at low temperatures.
- The condition of the battery terminals. Make sure the battery terminals stay clean by wiping them with a clean dry cloth before installing the battery pack.

Retaining data with power off

When you turn off your computer with fully charged batteries, the batteries retain data for the following approximate time periods:

Battery pack	about 3 days (Standby mode) about 20days (Boot mode)
RTC battery	30 days

Extending battery life

To maximize the life of your battery pack:

- At least once a month, disconnect the computer from a power source and operate it on battery power until the battery pack fully discharges. Before doing so, follow the steps below.

  1. Turn off the computer's power.
  2. Disconnect the AC adaptor and turn on the computer's power. If it does not turn on go to step 4.
  3. Operate the computer on battery power for five minutes. If the battery pack has at least five minutes of operating time, continue operating until the battery pack is fully discharged. If the **Battery** indicator flashes or there is some other warning to indicate a low battery, go to step 4.
  4. Connect the AC adaptor to the computer and the power cord to a power outlet. The **DC IN** indicator should glow green, and the **Battery** indicator should glow orange to indicate that the battery pack is being charged. If the **DC IN** indicator does not glow, power is not being supplied. Check the connections for the AC adaptor and power cord.
  5. Charge the battery pack until the **Battery** indicator glows green.

- If you have extra battery packs, rotate their use.
- If you will not be using the system for an extended period, more than one month, remove the battery pack.
- Disconnect the AC adaptor when the battery is fully charged. Overcharging makes the battery hot and shortens life.
- If you are not going to use the computer for more than eight hours, disconnect the AC adaptor.
- Store spare battery packs in a cool dry place out of direct sunlight.

Replacing the battery pack

When the battery pack reaches the end of its operating life you will need to install a new one. The life of the battery pack is generally about 500 recharges. If the **Battery** indicator or **TOSHIBA Style Bay** indicator (if a TOSHIBA Style Bay 2nd battery pack is installed) flashes orange shortly after fully recharging the battery, the battery pack needs to be replaced.

You might also replace a discharged battery pack with a charged spare when you are operating your computer away from an AC power source. This section explains how to remove and install the battery pack. For the details about removing/installing the TOSHIBA Style Bay 2nd battery pack, refer to Chapter 8, *Optional Devices*.

Removing the battery pack

To replace a discharged battery, follow the steps below.

CAUTIONS: *1. When handling battery packs, be careful not to short circuit the terminals. Also do not drop, hit or otherwise apply impact; do not scratch or break the casing and do not twist or bend the battery pack.*

2. Do not remove the battery pack while the computer is in Standby mode. Data is stored in RAM, so if the computer loses power it will be lost.

3. In Hibernation mode, data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the **Fixed HDD/ODD** *indicator to go out.*

1. Save your work.
2. Turn the computer's power off. Make sure the **Power** indicator is off.
3. Remove all cables connected to the computer.
4. Turn the computer upside down.
5. Slide the battery release latch to free the battery pack for removal, then slide out the battery pack.

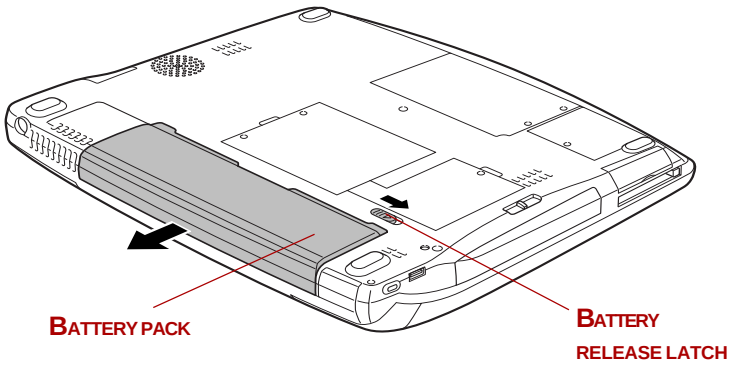


Figure 6-1 Releasing the battery cover

CAUTION: *For environmental reasons, do not throw away a spent battery pack. Please return spent battery packs to your TOSHIBA dealer.*

Installing the battery pack

To install a battery, follow the steps below.

> ***CAUTION:*** *The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*

1. Turn the computer's power off.
2. Disconnect all cables connected to the computer.
3. Insert the battery pack.
4. Secure the battery pack lock.

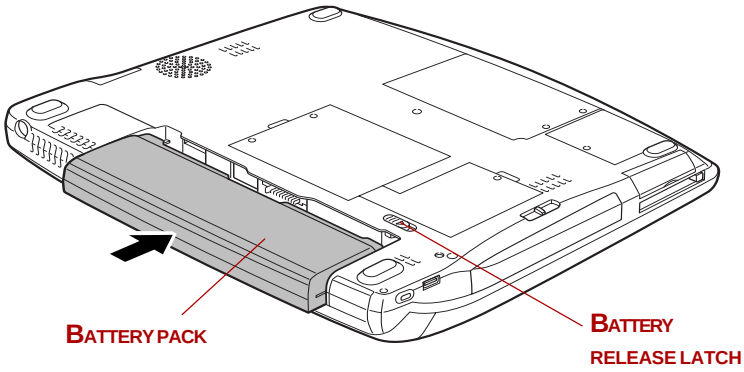


Figure 6-2 Securing the battery cover

Starting the computer by password

If you registered a password as user, you must enter it to start the computer. For more information about how to set a password, refer to Chapter 7, *HW Setup and Passwords*.

To start up the computer with the password, follow these steps:

1. Turn on the power as described in Chapter 3, *Getting Started* and the following message appears in the Sub LCD:

   ```
   Password =
   ```

2. Enter the password.

3. Press **Enter**.

NOTE: *If you enter the password incorrectly three times in a row, the computer shuts off. In this case, you must turn the computer back on to retry password entry.*

Power-up modes

The computer has the following power-up modes:

- Boot: Computer shuts down without saving data. Always save your work before you turn the computer off in boot mode.
- Hibernation: Data in memory is saved to the hard disk.
- Standby: Data is maintained in the computer's main memory.

NOTE: *Refer also to the sections* Turning on the power *and* Turning off the power *in Chapter 3,* Getting Started.

Windows utilities

You can specify the setting in TOSHIBA Power Saver.

Hotkeys

You can use hotkeys **Fn** + **F3** to enter Standby mode and **Fn** + **F4** to enter Hibernation. See Chapter 5, *Keyboard* for details.

Panel power off

You can set up your computer so that power turns off automatically when you close the display panel. When you open the panel, power turns on in Standby or Hibernation mode but not in boot mode.

NOTE: *If the panel power off function is enabled and you use Shut down Windows, do not close the display until the shut down function is completed.*

System Auto Off

This feature turns the system off automatically if it is not used for a set duration. The system shuts down in Standby mode or Hibernation mode in Windows.

HW Setup and Passwords

This chapter explains how to use TOSHIBA HW Setup program to configure your computer and how to set passwords.

HW Setup

TOSHIBA HW Setup lets you configure settings for general, password, CPU, boot priority, keyboard and LAN.

> ***NOTE:*** *If the supervisor password is set, access to the TOSHIBA HW Setup program can be prevented when the user password is used to log on to the computer.*

Accessing HW Setup

To run HW Setup, click **start**, click **Control Panel** and select **TOSHIBA HW Setup**.

HW Setup window

The HW Setup window contains the following tabs: General, Password, CPU, Boot Priority, Keyboard and LAN.

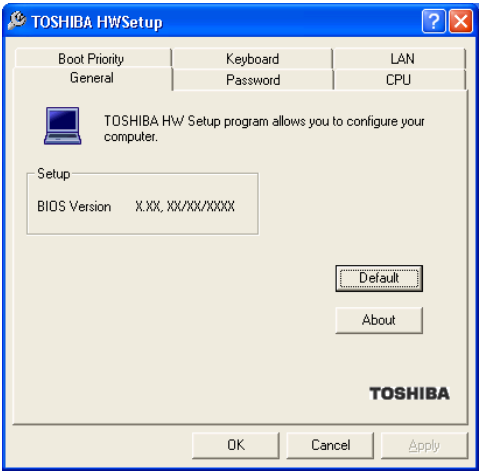


Figure 7-1 HW Setup window

There are also three buttons: OK, Cancel and Apply.

OK Accepts your changes and closes the HW Setup window.

Cancel Closes the window without accepting your changes.

Apply Accepts all your changes without closing the HW Setup window.

General

This window displays the BIOS version and contains two buttons: **Default** and **About**.

Setup

This field displays **BIOS Version** and date.

Default

Click **Default** to return all HW Setup values to the factory settings.

About

Click **About** to display the HW Setup version.

Password

User Password

This option allows you to set or reset the user password for power on.

Not Registered	Change or remove the password. (Default)
Registered	Set the password. A dialogue box will appear to let you set the password.

To enter a user password:

1. Select **Registered** to display the following prompt:

   Enter Password:

2. Enter a password of up to 10 characters. (You cannot use the following characters: **- ^ @ [ ] ; : , . /** space.) The character string you enter is displayed as a string of asterisks. For example, if you enter a password consisting of four characters, the display is shown as:

   Enter Password: **

   NOTE: If you click the **OK** *button before entering the password,* **Not registered** *will appear on the display.*

3. Click the **OK** button. The following message appears, allowing you to verify the password.

   Verify Password:

4. If character strings match, the password is registered and the display changes to:

   The password was registered

   If they do not match, the following message appears. You must repeat from step 1.

   Entry Error!!!

To delete a user password:

1. Select **Not Registered** to display the following prompt:

   ```
   Enter Password:
   ```

2. Enter the currently registered password. The character string you enter is displayed as a string of asterisks.

   ```
   Enter Password: ****
   ```

   NOTE: *If you click the* **OK** *button before entering the password,* **Registered** *will appear on the display.*

3. Click the **OK** button. If the character string you enter matches the registered password, the password option is reset and the display changes to:

   ```
   The password was deleted
   ```

   If they do not match, the following message appears. You must repeat step 1.

   ```
   Incorrect Password
   ```

   NOTE: *If you enter the password incorrectly three times, the screen will display:*

   ```
   Sorry, access denied!!! Powering off your
   machine then powering it back on again are
   required to regain access.
   ```

   You will not be able to access the password option in the HW Setup. In this case you must turn the power off and back on to retry the procedure.

4. Follow the same procedures described in the earlier section, *How to set the password*, to set a new user password.

Refer to the *Supervisor password* section later in this chapter for details on setting the supervisor password.

Key FD

After you set a password, you can create a Key FD (diskette). If you forget the user password, the Key FD lets you bypass the password function.

> ***NOTE:*** *It is a good idea to create more than one Key FD in case a Key FD is damaged or lost.*

To create a Key FD follow the steps below.

1. Turn off the computer's power.
2. Connect the diskette drive to a USB port on the computer.
3. Set a diskette's write-protect tab to the write enable position and insert the diskette in the drive.

   NOTE: *All data on the diskette will be destroyed.*

4. Turn on the computer's power.

   `Password=` will be displayed on the Sub LCD.
5. Enter the password.
6. Press the Tab key.

   `Insert FD Ready (Y/N)` will be displayed on the Sub LCD.
7. Press Y.

   `Remove FD press key` will be displayed on the Sub LCD.
8. Remove the diskette and press any key.

CPU

This function lets you set the CPU operating mode.

Dynamic CPU Frequency Mode

This option lets you choose from the following settings:

`Dynamically Switchable`	CPU power consumption and clock speed automatic switching function is enabled. When the computer is in use, CPU operation is automatically switched when necessary. (Default)
`Always High`	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at its fastest speed.
`Always Low`	CPU power consumption and clock speed automatic switching function is disabled. The CPU always runs at low power consumption and low speed.

Boot Priority

Boot Priority Options

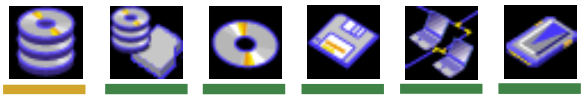
This option sets the priority for booting the computer. Select from the following settings:

HDD -> FDD -> CD-ROM -> LAN	The computer looks for bootable files in the following order: HDD, diskette drive, CD-ROM* and LAN. (Default)
FDD -> HDD -> CD-ROM -> LAN	The computer looks for bootable files in the following order: diskette drive, HDD, CD-ROM* and LAN.
HDD -> CD-ROM -> LAN -> FDD	The computer looks for bootable files in the following order: HDD, CD-ROM*, LAN and diskette drive.
FDD -> CD-ROM -> LAN -> HDD	The computer looks for bootable files in the following order: diskette drive, CD-ROM*, LAN and HDD.
CD-ROM -> LAN -> HDD -> FDD	The computer looks for bootable files in the following order: CD-ROM*, LAN, HDD, diskette drive.
CD-ROM -> LAN -> FDD -> HDD	The computer looks for bootable files in the following order: CD-ROM*, LAN, diskette drive and HDD.

* In this computer, CD-ROM refers to the fixed optical media drive or TOSHIBA Style Bay optical media drive. The priority is fixed optical media drive **->** TOSHIBA Style Bay optical media drive.

To change the boot drive, follow the steps below.

1. Hold down **F12** and boot the computer.
2. The following menu will be displayed with the following icons: Built-in HDD, TOSHIBA Style Bay HDD, CD-ROM, FDD, Network (LAN), PCA (ATA) card boot.



NOTE: *A bar will appear only under the selected device.*

3. Use the left/right cursor keys to highlight the boot device you want and press **Enter**.

NOTES:
1. *If a supervisor password is set, the menu above does not appear when you use the user password to start the computer.*
2. *The selection method above does not change the boot priority settings in HW Setup.*
3. *If you press a key other than one of those above or if the selected device is not installed, the system will boot according to the current setting in HW Setup.*
4. *Support of PCA (ATA) card boot is guaranteed only for TOSHIBA PC card HDDs.*
5. *A PCA (ATA) card takes the position of HDD in the Boot Priority Options list.*

HDD Priority Options

If more than one HDD is installed in the computer, this option lets you set the priority for HDD detection. If the first detected HDD has a boot command, the system will boot from the HDD.

Built-in HDD -> Second HDD The computer will look for the Built-in HDD first, and then the Second HDD. (Default)

Second HDD -> Built-in HDD The system will look for the Second HDD first, and then the Build-in HDD.

NOTE: *If a boot command is not found on the first detected HDD, the system will not boot from the other HDD. It will search the next device in the boot priority for a boot command.*

Network Boot Protocol

This feature sets the protocol to remotely boot from the network.

[PXE] Sets PXE as the protocol. (Default)

[RPL] Sets RPL as the protocol.

Keyboard

Wake-up on Keyboard

When this feature is enabled and the computer is in Standby mode, you can turn on the computer by pressing any key. It is effective only for the internal keyboard and only when the computer is in standby mode.

Enabled	Enables the Wake-up on Keyboard.
Disabled	Disables the Wake-up on Keyboard. (Default)

LAN

Wake-up on LAN

This features lets the computer's power be turned on when it receives a wake-up signal from the LAN.

Enabled	Enables Wake-up on LAN.
Disabled	Disables Wake-up on LAN. (Default)

CAUTION: *Do not install or remove an optional memory module while Wake-up on LAN is enabled.*

NOTE: *The Wake-up on LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*

Built-in LAN

This feature enables or disables the Built-in LAN.

Enabled	Enables Built-in LAN functions. (Default)
Disabled	Disables Built-in LAN functions.

Supervisor password

Refer to the readme file of the Supervisor Password Utility for instructions on setting the Supervisor Password.

The path to the readme file is **C:\Program Files\TOSHIBA\Windows Utilities\SVPWTool**. In the **SVPWTool** directory, open the **readme.htm** file.

Optional Devices

Optional devices can expand the computer's capabilities and its versatility. This chapter describes connection or installation of the following devices, which are available from your TOSHIBA dealer:

Cards/memory

- PC cards
- SD cards
- Memory expansion
- TOSHIBA Style Bay Bridge media adaptor (Memory Stick/Smart Media/ Compact Flash memory)

Power devices

- Additional battery pack
- TOSHIBA Style Bay 2nd battery pack
- Additional AC adaptor
- Battery charger

Peripheral devices

- TOSHIBA Style Bay HDD adaptor
- External monitor
- TV
- i.LINK (IEEE1394)

Other

- Security lock

PC cards

The computer is equipped with a PC card expansion slot that can accommodate one 5 mm Type II card. Any PC card that meets industry standards (manufactured by TOSHIBA or other vendor) can be installed. The slot supports 16-bit PC cards, including PC card 16's multifunction card and CardBus PC cards.

CardBus supports the new standard of 32-bit PC cards. The bus provides superior performance for the greater demands of multimedia data transmission.

Installing a PC card

The PC card connector is located on the right side of the computer.

Windows' hot-install feature lets you install PC cards while the computer's power is on.

> ***NOTE:*** *Do not install a PC card while the computer is in standby or hibernation mode. Some cards might not work properly.*

To install a PC card, follow the steps below.

1. Insert the PC card.
2. Press gently to ensure a firm connection.

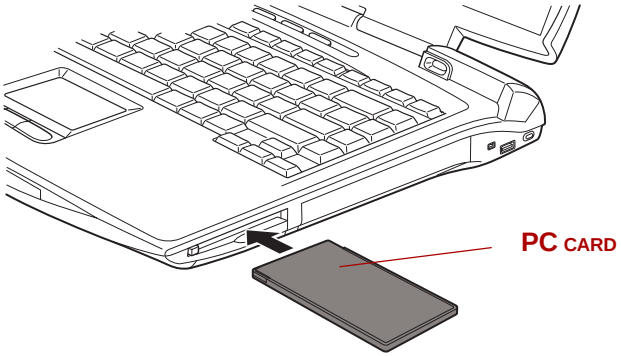


Figure 8-1 Installing the PC card

After installing the card, refer to the card's documentation and check the configuration in Windows to make sure it is appropriate for your card.

Removing a PC card

To remove the PC card, follow the steps below.

1. Click the **Safety Remove Hardware** icon on the Task Bar.
2. Click **PC card**.
3. Press the PC card eject button to extend it.
4. Press the extended eject button to pop the card out slightly.
5. Grasp the PC card and remove it.

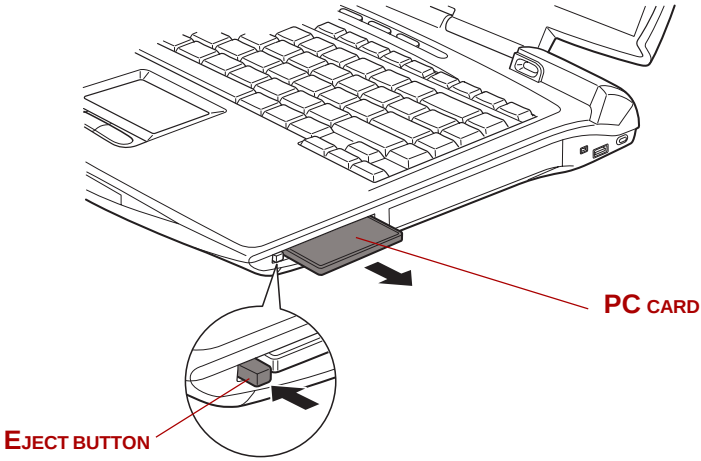


Figure 8-2 Removing the PC card

SD cards

The computer is equipped with an SD card slot that can accommodate Secure Digital flash memory cards with capacities of 8 MB, 16 MB, 32 MB, 64 MB and 128 MB. SD cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, that use SD card flash-memory. The cards have a high level of security and copy protection features. The slot cannot accommodate MultiMedia cards.

CAUTION: *Keep foreign objects out of the SD card slot. A pin or similar object can damage the computer's circuitry.*

NOTE: *SD memory cards comply with SDMI (Secure Digital Music Initiative), which is a technology adopted to prevent unlawful copy or playback of digital music. For this reason, you cannot copy or playback protected material on another computer or other device. You may not use the reproduction of any copyrighted material except for your personal enjoyment.*

Installing an SD card

To install an SD card, follow the steps below.

1. Insert the SD card.
2. Press gently to ensure a firm connection.

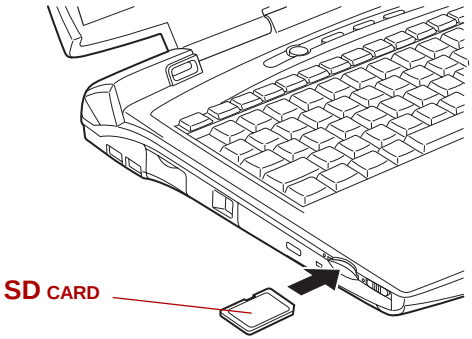


Figure 8-3 Inserting an SD card

CAUTION: *Make sure the SD card is oriented properly before you insert it.*

Removing an SD card

To remove an SD card, follow the steps below.

1. Click the **Safety Remove Hardware** icon on the Task Bar.
2. Point to **SD card** and click.
3. Push in the card and release it to pop the card out slightly.
4. Grasp the card and remove it.

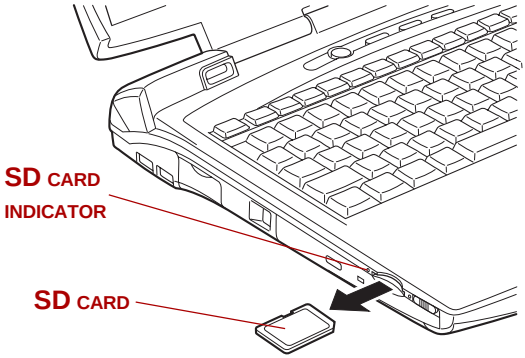


Figure 8-4 Removing an SD card

CAUTION: *Make sure the SD card indicator is out before you remove the card or turn off the computer's power. If you remove the card or turn off the power while the computer is accessing the card you may lose data or damage the card.*

SD card care

CAUTION: *Set the write-protect switch to the lock position, if you do not want to record data.*

1. Do not write to an SD card if the battery power is low. Low power could affect writing accuracy.
2. Do not remove an SD card while read/write is in progress.
3. The SD card is designed so that it can be installed only one way. Do not try to force the card into the slot.
4. Do not leave an SD card partially inserted in the slot. Press the SD card until you hear it click into place.

5. Do not twist or bend SD cards.
6. Do not expose SD cards to liquids or store in humid areas or in lay media close to containers of liquid.
7. After using an SD card, return it to its case.
8. Do not touch the metal part or expose it to liquids or let it get dirty.

Memory expansion

You can install additional memory in the computer's memory module socket to increase the amount of RAM. This section describes how to install and remove a memory module.

CAUTION: *Use only memory modules approved by TOSHIBA.*

CAUTION: *Do not try to install or remove a memory module under the following conditions. You can damage the computer and the module. Also, data will be lost.*

1. *The computer is turned on.*
2. *The computer was shut down using the Stand by mode or Hibernation mode.*
3. *Power to the fixed optical media drives has been turned on by the Mode Control button and Play/Pause button. (CD Player mode)*
4. *Wake-up on LAN is enabled.*

NOTE: *Use a 0-bit, Phillips screwdriver to remove and fasten the screws. Use of an incorrect screwdriver can damage the screw heads.*

Installing memory module

Follow the steps below to install a memory module.

1. Set the computer to boot mode and turn off the power.
2. Remove all cables connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to Chapter 6, *Power and Power-Up Modes*).
4. Remove two screws securing the memory module cover.
5. Slide your fingernail or a thin object under the cover and lift it off.

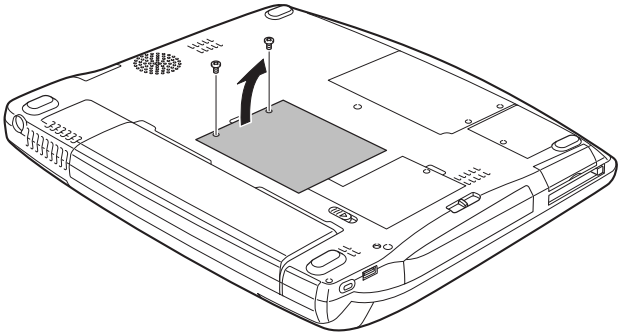


Figure 8-5 Removing the memory module cover

6. Lift one side of the insulator sheet and fit the module's connectors into the computer's connectors at about a 45 degree angle. Press the module carefully to ensure a firm connection.

   CAUTION: *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*

   NOTE: *You can install the main memory module in either slot.*

7. Push the module down so it lies flat. Latches on either side will click into place to secure the module.

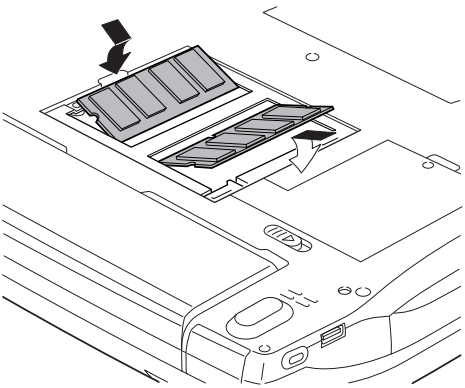


Figure 8-6 Installing a module

8. Seat the cover and secure it with two screws.
9. Replace the battery pack as described in Chapter 6, *Power and Power-Up Modes*.
10. Turn the power on and make sure the added memory is recognized. Open **System Properties** in the Control Panel and click the **General** tab.

Removing memory module

To remove the memory module, make sure the computer is in boot mode then:

1. Be sure the power is off and all cables are disconnected from the computer.
2. Turn the computer upside down and remove the battery and two screws securing the memory module cover.
3. Slide your fingernail or a thin object under the cover and lift it off.
4. Lift one side of the insulator and push the latches to the outside to release the module. A spring will force one end of the module up.

5. Grasp the module by the sides and pull it out.

CAUTIONS: *1. If you use the computer for a long time, the memory modules will become hot. In this case, let the memory modules cool to room temperature before you replace them.*

2. Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.

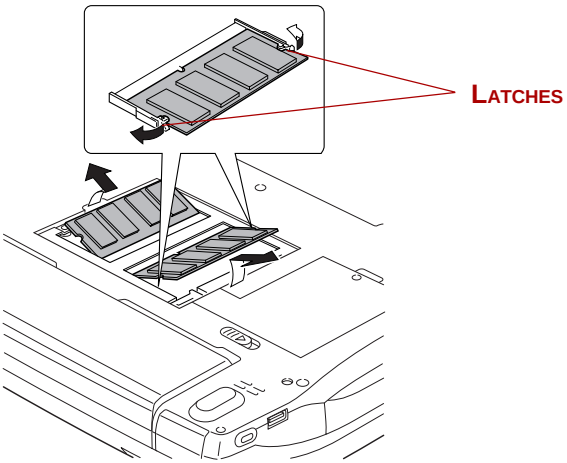


Figure 8-7 Removing the memory module

6. Seat the cover and secure it with two screws and replace the battery pack.

TOSHIBA Style Bay Bridge media adaptor

You can install three types of memory, Memory Stick, SmartMedia and Compact Flash, in the computer's TOSHIBA Style Bay Bridge media adaptor. For details on using the adaptor, follow the steps below. For details on installing modules in the TOSHIBA Style Bay, refer to chapter 4, *Operating Basics*.

Bridge media Inserting/removing

Read the following precautions before you insert or remove a Bridge media:

- Do not turn off the power or remove or reinsert a Bridge media while data is being written or read. Data could be destroyed. Wait for the **Bridge media** indicator (SmarMedia indicator, Memory Stick indicator and Compact Flash indicator) to go out.
- Do not touch the Bridge media's connector. You could expose the storage area to static electricity, which can destroy data.
- Hold the Bridge media straight when you insert or remove it.
- Pull the Bridge media completely out when you remove it. Do not leave it partially inserted.

SmartMedia

This slot accommodates 3.3 V SmartMedia (RAM) from 2 MB to 128 MB.

- You cannot use SmartMedia that does not conform to SSFDC specifications.
- Operation of SmartMedia developed after the computer was manufactured is not guaranteed.
- After you finish using SmartMedia, return it to its case, which is resistant to static electricity.

Write protection

SmartMedia can be write protected to safeguard your data.

To write-protect SmartMedia, apply a seal to the write-protect area. To write-enable, remove the seal.

- Do not use the standard Windows format, because your camera or other device might not be able to read it. Formatting destroys all data on the card, so be sure it contains no data you want to keep.
- Do not reuse a write-protect seal that has been removed. A reused seal might peel off in the computer or device and cause a malfunction.

Inserting

1. To insert SmartMedia, turn the card so that the connector (metal area) faces up.

2. Push the card into the slot until it locks into place.

NOTE: If Windows does not recognize a SmartMedia card, try removing the card and inserting it again. Be careful not to touch the connectors. You could expose the storage area to static electricity, which can destroy data.

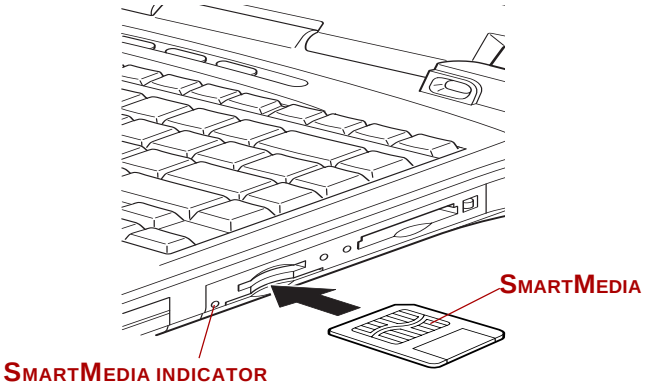


Figure 8-8 Inserting a SmartMedia

Removing

CAUTION: Do not remove a SmartMedia card while data is being written or read. Data could be destroyed. Wait for ***SmartMedia*** *indicator on the left side of the SmartMedia slot to go out.*

1. Right click (right button of the cPad/TouchPad) on the SmartMedia drive's icon and select **Eject** from the pop-up menu.
2. Push the card and release it. The card will pop out slightly.

3. Lift the left side of the computer slightly and grasp the card. Pull it straight out.

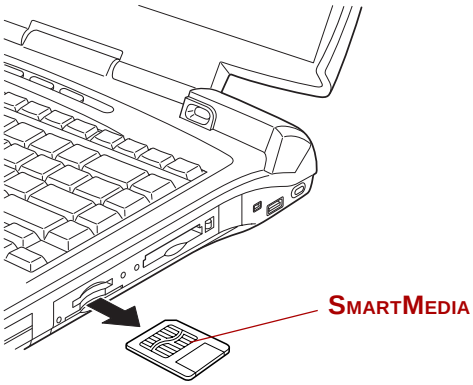


Figure 8-9 Removing a SmartMedia

Memory Stick

This slot accommodates Memory Stick from 16MB to 128MB.

NOTE: *The slot does not support Magic Gate functions.*

Write protection

Memory Stick can be write protected to safeguard your data. To write-protect a Memory Stick, slide the lock on the back of the Memory Stick to the lock position.

Installing a Memory Stick

To install a Memory Stick, follow the steps below.

1. Insert the Memory Stick into the slot.

2. Press gently to ensure a firm connection.

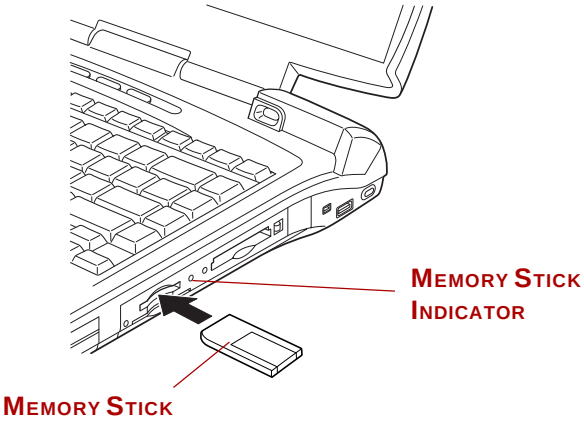


Figure 8-10 Inserting a Memory Stick

Removing a Memory Stick

To remove a Memory Stick, follow the steps below.

1. Right-click (right button of the cPad/TouchPad) on the Memory Stick driver's icon and select **Eject** from the pop-up menu.
2. Push in the Memory Stick and release it to pop the Memory Stick out slightly.
3. Grasp the Memory Stick and pull it out.

CAUTION: *Make sure the Memory Stick indicator is out before you remove the Memory Stick or turn off the computer's power. If you remove the Memory Stick or turn off the power while the computer is accessing the Memory Stick, you may lose data or damage the Memory Stick.*

Compact Flash

This slot accommodates Compact Flash from 8MB to 512MB (type I memory only). You cannot use Compact Flash that does not conform to CFA specifications.

Installing a Compact Flash module

To install a Compact Flash module, follow the steps below.

1. Insert the Compact Flash into the slot.
2. Press gently to ensure a firm connection.

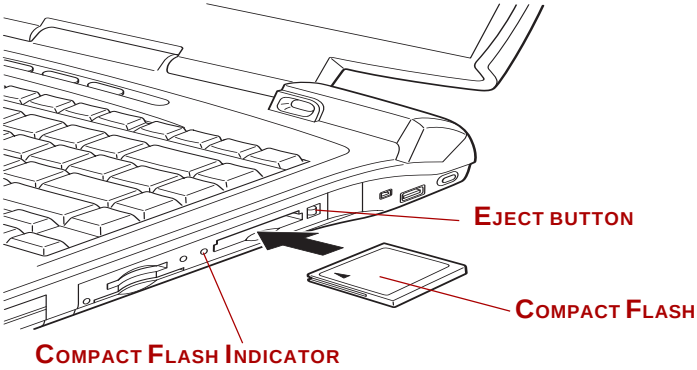


Figure 8-11 Inserting a Compact Flash module

Removing a Compact Flash memory module

To remove a Compact Flash, follow the steps below.

1. Right click (right button of the cPad/TouchPad) on the Compact Flash drive's icon and select Eject from the pop-up menu.
2. Press the Compact Flash eject button to extend it.
3. Press the extended eject button to pop the Compact Flash out slightly.
4. Grasp and pull out the Compact Flash.

CAUTION: *Make sure the Compact Flash indicator is out before you remove the Compact Flash or turn off the computer's power. If you remove the Compact Flash or turn off the power while the computer is accessing the Compact Flash you may lose data or damage the Compact Flash.*

Bridge media care

1. Bridge media is consumable item, so make sure you back up important data.
2. Do not twist or bend Bridge media.

3. Do not expose Bridge media to liquids or store in humid areas or lay media close to containers of liquid.
4. Do not touch the metal part or expose it to liquids or let it get dirty.
5. After using Bridge media, return it to its case.

NOTE: *For more details on using the Bridge media, see manuals accompaning the Bridge media.*

Additional battery pack

You can increase the portability of the computer with additional battery packs. If you're away from an AC power source and your battery runs low, you can replace it with a freshly charged battery. See Chapter 6, *Power and Power-Up Modes*.

TOSHIBA Style Bay 2nd battery pack

You can install a secondary battery pack in the computer's TOSHIBA Style Bay. The battery comes with an adaptor. For details on using the adaptor, follow the steps below. For details on installing modules in the TOSHIBA Style Bay, refer to Chapter 4, *Operating Basics*.

Installing

To install the secondary battery pack in the adaptor, follow the steps below.

1. Fit the side of the secondary battery pack opposite the connector into the adaptor.

2. Lay the battery into the adaptor. The latch should close automatically to secure the secondary battery pack.

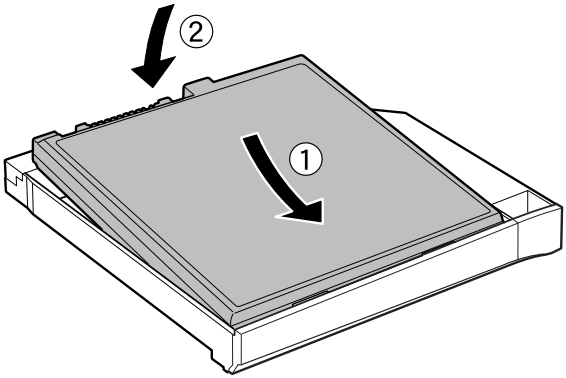


Figure 8-12 Installing the secondary battery pack in the adaptor

Removing

To remove the secondary battery from the adaptor, follow the steps below.

1. Slide the latch in the direction of the arrow shown below.
2. Push the secondary battery pack up from the bottom and lift it out.

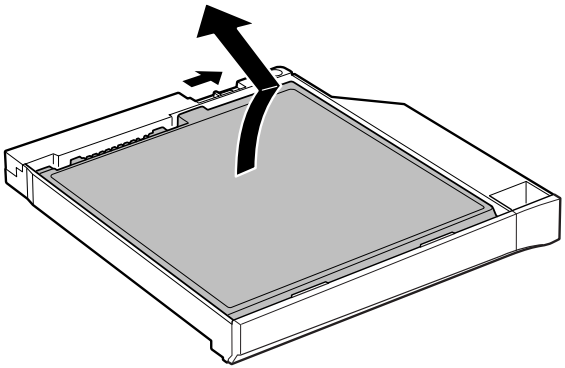


Figure 8-13 Removing the secondary battery pack from the adaptor

Additional AC adaptor

If you frequently transport the computer between different sites such as your home and office, purchasing an AC adaptor for each location will reduce the weight and bulk of your carrying load.

Battery charger

The battery charger (PA3091U) provides a convenient way to charge battery packs without requiring the use of your computer. The battery charger holds up to two Lithium-ion battery packs.

TOSHIBA Style Bay HDD adaptor

A integrated 2 1/2" HDD is available for installation in the TOSHIBA Style Bay.

To install an HDD in the TOSHIBA Style Bay HDD adaptor follow the steps below.

1. Slide the lock to the unlock position and open the lid.

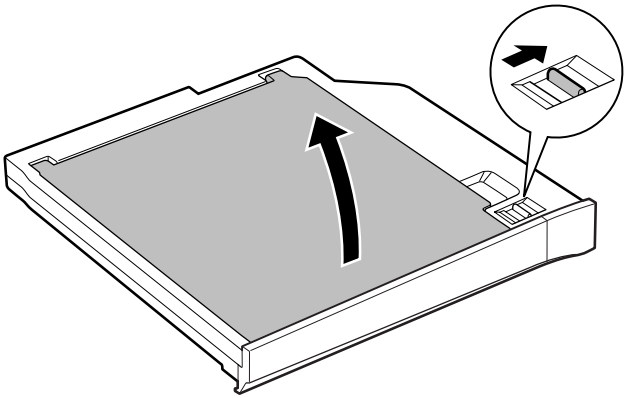


Figure 8-14 Opening the lid

2. Insert the HDD and push forward to ensure a firm connection.

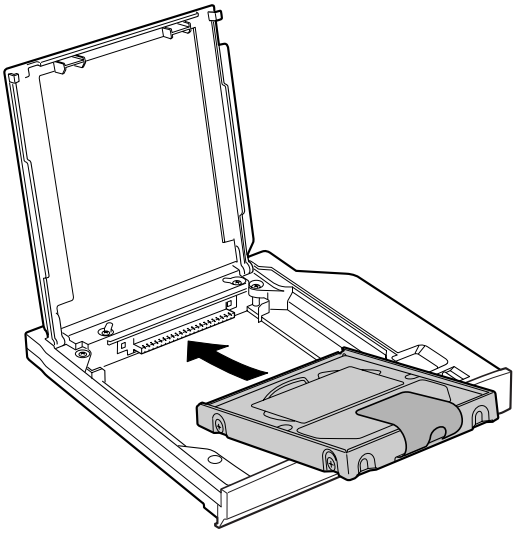


Figure 8-15 Installing the HDD

3. Close the lid and slide the lock to the lock position.

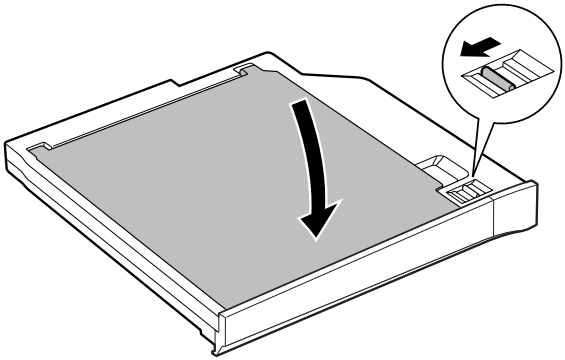


Figure 8-16 Closing the lid

For details on installing the TOSHIBA Style Bay HDD adaptor in the TOSHIBA Style Bay, refer to Chapter 4, *Operating Basics*.

External monitor

An external analog monitor can be connected to the external monitor port on the computer. The computer supports VGA and Super VGA video modes. To connect a monitor, follow the steps below.

1. Turn the computer off.
2. Connect the monitor to the external monitor port.
3. Turn the monitor's power on.
4. Turn the computer on.

When you turn on the power, the computer automatically recognizes the monitor and determines whether it is color or monochrome.

To change the display settings, press **Fn + F5**. If you disconnect the monitor before you turn the computer off, be sure to press **Fn + F5** to switch to the internal display. Refer to Chapter 5, *The Keyboard*, for details on using hot keys to change the display setting.

TV

You can connect a television set to the video-out and line-out jack on the computer. Follow the steps below.

Using the TV button

1. Connect the TV adaptor cable's mini-jack to the video-out and line-out jack on the computer.
2. Connect the TV adaptor cable's RCA jack to the RCA jack on the TV.
3. Press the TV button.

You can use the hotkeys **Fn** + **F5** to change the display device. Refer to Chapter 5, *The Keyboard*.

> ***NOTE:*** *If a television is connected to the computer, set the TV type in Display Properties. Follow the steps below.*
>
> *a. Click* **start** *and click* **Control Panel**.
> *b. Double-click the* **Display** *icon to open the Display Properties window.*
> *c. Click the* **Settings** *tab and click the* **Advanced** *button.*

d. Click the **nView Display Mode** *tab, click* **Device Settings** *and click* **Select Output Device**.

e. Select **Advanced** *and select* **TV** *in the* **Device Selection** *window.*

f. Select the **Format** *box and select the format that your TV supports.*

Changing the resolution

When you press the TV button, the CRT resolution is also set. (The default is 1024 x 768.) If you want to change the resolution, follow the steps below.

(1) Open **`Display properties`** and select the **Settings** tab.

(2) Select **Advanced** (Figure 8-17).

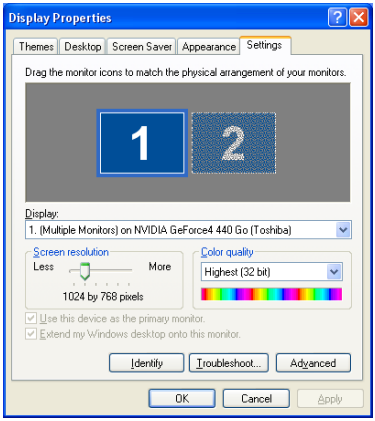


Figure 8-17 Display properties

(3) Select the **Adapter** tab, then select **List all modes**.

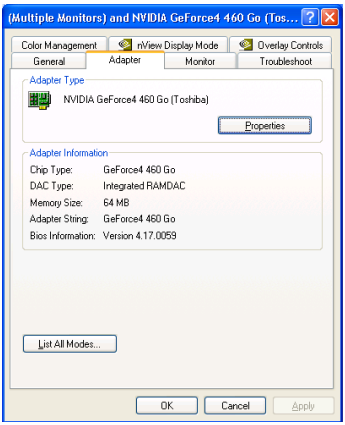


Figure 8-18 The Adapter window

(4) Select a resolution from the menu.

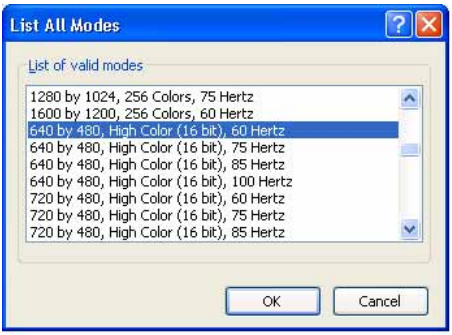

List All Modes
List of valid modes
1280 by 1024, 256 Colors, 75 Hertz
1600 by 1200, 256 Colors, 60 Hertz
640 by 480, High Color (16 bit), 60 Hertz
640 by 480, High Color (16 bit), 75 Hertz
640 by 480, High Color (16 bit), 85 Hertz
640 by 480, High Color (16 bit), 100 Hertz
720 by 480, High Color (16 bit), 60 Hertz
720 by 480, High Color (16 bit), 75 Hertz
720 by 480, High Color (16 bit), 85 Hertz
OK
Cancel

Figure 8-19 Resolution menu

i.LINK (IEEE1394)

i.LINK (IEEE1394) is used for high-speed data transfer for a range of compatible devices such as

- Digital video cameras
- Hard disk drives
- MO drives
- CD-RW drives

NOTE: *i.LINK uses a four-pin connector, which does not carry electric current. External devices will need their own power supply.*

Precautions

- Make a back-up of your data before transferring it to the computer. There is a possibility that the original data will be damaged. There is a particular risk that some frames will be deleted in the case of digital video transfer. TOSHIBA assumes no liability for such loss of data.
- Do not transfer data in areas where static electricity is easily generated or in areas subjected to electronic noise. Data can be destroyed.
- If you are transferring data through an IEEE1394 hub, do not connect or disconnect other devices from the hub during data transfer. There is a likelihood that data will be damaged. Connect all devices to the hub before you turn on the computer's power.
- You may not use any copyrighted video or music data copied from a video camera except for your personal enjoyment.
- If you connect/disconnect an iLINK device to/from another iLINK device that is currently exchanging data with the computer, data frames might be dropped.
- Make sure data transfer has ended or turn off the computer, before you:
  - Connect/disconnect an iLINK device to/from the computer.
  - Connect/disconnect an iLINK device to/from another iLINK device that is connected to the computer.

Connecting

1. Make sure the connectors are properly aligned and plug the i.LINK (IEEE1394) cable into the computer.
2. Plug the other end of the cable into the device.

Note the following when you use i.LINK:

- You may need to install drivers for your i.LINK devices.
- Not all i.LINK devices have been tested. Therefore, compatibility with all i.LINK devices cannot be guaranteed.
- Use S100, S200 or S400 cables no longer than three meters.
- Some devices might not support standby or automatic off functions.
- Do not connect or disconnect an i.LINK device while it is using an application or when the computer is automatically shutting it down to save power. Data might be destroyed.

Disconnecting

1. Click the **Safety Remove Hardware** icon on the Task Bar.
2. Point to **i.LINK (IEEE1394) device** and click.
3. Disconnect the cable from the computer then from the i.LINK device.

NOTE: *Refer also to the documentation that came with your i.LINK device.*

Security lock

A security lock enables you to anchor your computer to a desk or other heavy object to help prevent unauthorized removal of the computer.

Attach one end of a cable to the desk and the other end to the security lock slot on the right side of the computer.

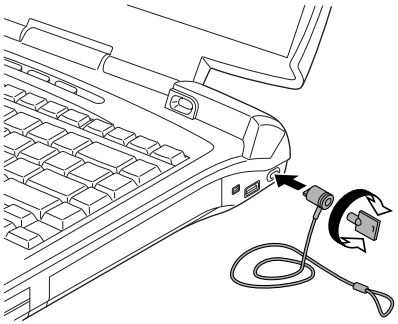


Figure 8-20 Security lock

Troubleshooting

TOSHIBA designed the computer for durability. However, should problems occur, following the procedures in this chapter can help to determine the cause.

All readers should become familiar with this chapter. Knowing what might go wrong can help prevent problems from occurring.

Problem solving process

Resolving problems will be much easier if you observe the following guidelines:

- Stop immediately when you recognize a problem exists. Further action may result in data loss or damage. You may destroy valuable problem-related information that can help solve the problem.
- Observe what is happening. Write down what the system is doing and what actions you performed immediately before the problem occurred. If you have a printer attached, print a copy of the screen using **PrtSc**.

The questions and procedures offered in this chapter are meant as a guide, they are not definitive problem solving techniques. Many problems can be solved simply, but a few may require help from your dealer. If you find you need to consult your dealer or others, be prepared to describe the problem in as much detail as possible.

Preliminary checklist

Consider the simplest solution first. The items in this checklist are easy to fix and yet can cause what appears to be a serious problem.

- Make sure you turn on all peripheral devices before you turn on the computer. This includes your printer and any other external device you are using.
- Before you attach an external device, turn the computer off. When you turn the computer back on it recognizes the new device.
- Make sure all options are set properly in the setup program.
- Check all cables. Are they correctly and firmly attached? Loose cables can cause signal errors.
- Inspect all connecting cables for loose wires and all connectors for loose pins.

- Check that your diskette or CD/DVD-ROM is correctly inserted and that the diskette's write protect tab is correctly set.

Make notes of your observations and keep them in a permanent error log. This will help you describe your problems to your dealer. If a problem recurs, the log will help you identify the problem faster.

Analyzing the problem

Sometimes the system gives clues that can help you identify why it is malfunctioning. Keep the following questions in mind:

- Which part of the system is not operating properly: keyboard, diskette drives, hard disk drive, optical media drive, display. Each device produces different symptoms.
- Is the operating system configuration set properly? Check the configuration options.
- What appears on the display screen? Does it display any messages or random characters? Print a copy of the screen if you have a printer attached. Look up the messages in the software and operating system documentation. Check that all connecting cables are correctly and firmly attached. Loose cables can cause erroneous or intermittent signals.
- Do any indicators light? Which ones? What color are they? Do they stay on or blink? Write down what you see.
- Do you hear any beeps? How many? Are they long or short? Are they high pitched or low? Is the computer making any unusual noises? Write down what you hear.

Record your observations so you can describe them to your dealer.

Software The problems may be caused by your software or disk. If you cannot load a software package, the media may be damaged or the program might be corrupted. Try loading another copy of the software.

If an error message appears while you are using a software package, check the software documentation. These documents usually include a problem solving section or a summary of error messages.

Next, check any error messages in the OS documentation.

Hardware If you cannot find a software problem, check your hardware. First run through the items in the preliminary checklist above. If you still cannot correct the problem, try to identify the source. The next section provides checklists for individual components and peripherals.

Hardware and system checklist

This section discusses problems caused by your computer's hardware or attached peripherals. Basic problems may occur in the following areas:

- System start-up
- Self test
- Power
- Password
- Keyboard
- LCD panel
- Hard disk drive
- DVD-ROM drive
- CD-RW/DVD-ROM drive
- Diskette drive
- SD card
- PC card
- Infrared port
- Pointing device
- USB
- Memory expansion
- Sound system
- Monitor
- i.LINK (IEEE1394)
- Modem
- LAN
- Wireless LAN
- Bluetooth
- TOSHIBA Remote Control

System start-up

When the computer does not start properly, check the following items:

- Self Test
- Power Sources
- Power-on Password

Self test

When the computer starts up, the self test will be run automatically, and the following will be displayed:

```
In Touch with Tomorrow
TOSHIBA
```

This message remains on the screen for a few seconds.

If the self test is successful, the computer tries to load the operating system. Depending on how the Boot Priority is set in the TOSHIBA HW Setup program.

If any of the following conditions are present, the self test failed:

- The computer stops and does not proceed to display information or messages except the TOSHIBA logo.
- Random characters appear on the screen, and the system does not function normally.
- The screen displays an error message.

Turn off the computer and check all cable connections as well as PC card and memory module connections. If the test fails again, contact your dealer.

Power

When the computer is not plugged into an AC outlet, the battery pack is the primary power source. However, your computer has a number of other power resources, including intelligent power supply, Real Time Clock battery. These resources are interrelated and any one could affect apparent power problems. This section provides check lists for AC power and the battery. If you cannot resolve a problem after following them, the cause could lie with another power resource. In such case, contact your dealer.

Overheating power down

If the computer's internal temperature becomes too high, the computer will automatically shut down.

Problem	Procedure
Computer shuts down and **DC IN** indicator blinks orange	Leave the computer off until the computer reaches room temperature, then turn it back on. If the computer is still too warm, the **DC IN** indicator will continue blinking when you turn on the power. Let it cool longer and try again. If the computer has reached room temperature and still does not start, or if it starts but shuts down quickly, contact your dealer.

AC power

If you have trouble turning on the computer with the AC adaptor connected, check the **DC IN** indicator. Refer to Chapter 6, *Power and Power-Up Modes* for more information.

Problem	Procedure
AC adaptor doesn't power the computer (**DC IN** indicator does not glow green)	Check the connections. Make sure the cord is firmly connected to the computer and a power outlet.
	Check the condition of the cord and terminals. If the cord is frayed or damaged, replace it. If the terminals are soiled, wipe them with cotton or a clean cloth. If the AC adaptor still does not power the computer, contact your dealer.

Battery

If you suspect a problem with the battery, check the **DC IN** indicator as well as the **Battery** and **TOSHIBA Style Bay** indicators. For information on indicators and battery operation see Chapter 6, *Power and Power-Up Modes*.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged. Connect the AC adaptor to charge the battery.
Battery doesn't charge when the AC adaptor is attached (**Battery** or **TOSHIBA Style Bay** indicator does not glow orange.)	If the battery is completely discharged, it will not begin charging at once. Wait a few minutes. If the battery still does not charge, make sure the outlet is supplying power. Plug in an appliance and see if it works. If it doesn't, try another power source.
	Check whether the battery is hot or cold. If the battery is too hot or too cold, it will not charge properly. Let it reach room temperature.
	Unplug the AC adaptor and remove the battery to make sure the terminals are clean. If necessary wipe them with a soft dry cloth dipped in alcohol. Connect the AC adaptor and replace the battery. Make sure the battery is securely seated. If the indicator still does not glow, the battery may be at the end of its operating life. Replace it. If you do not think the battery is at the end of its operating life, see your dealer.
Battery doesn't power the computer as long as expected	Check the power consumption settings in TOSHIBA Power Saver Utility. Consider using a power saving mode.

Password

Problem	Procedure
Cannot enter or forgot password	Contact your dealer. ***NOTE:*** *For information on setting a password, refer to Chapter 7, HW Setup and Passwords.*

Keyboard

Keyboard problems can be caused by your setup configuration. For more information refer to Chapter 5, *The Keyboard*.

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not selected. Press **Fn** + **F10** and try typing again.
Output to screen is garbled	Make sure the software you are using is not remapping the keyboard. Remapping involves reassigning the meaning of each key. See your software's documentation. If you are still unable to use the keyboard, consult your dealer.

LCD panel

Problem	Procedure
No display	Press hotkeys **Fn** + **F5** to change the display priority, to make sure it is not set for an external monitor.

Markings appear on the LCD.	They might have come from contact with the keyboard, TouchPad or cPad. Try wiping the LCD gently with a clean dry cloth. If markings remain, use LCD cleaner. Be sure to let the LCD dry before closing it.
Problems above remain unresolved or other problems occur	Refer to your software's documentation to determine if the software is causing the difficulty. Contact your dealer if the problems continue.

Hard disk drive

Problem	Procedure
Computer does not boot from hard disk drive	Check if a diskette is in the diskette drive or a CD-ROM is in the optical media drive. Remove any diskette and/or CD-ROM and check Boot priority. Refer to Chapter 7, *Boot Priority*.
	There may be a problem with your operating system files. Refer to your OS documentation.
Slow performance	Your files may be fragmented. Run SCANDISK and defragmenter to check the condition of your files and disk. Refer to your OS documentation or online HELP for information on running SCANDISK and the defragmenter.
	As a last resort, reformat the hard disk. Then, reload the operating system and other files. If problems persist, contact your dealer.

DVD-ROM drive

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
You cannot access a CD/DVD in the drive	Make sure the drive's drawer is securely closed. Press gently until it clicks into place.
	Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.
	A foreign object in the drawer could block laser light from reading the CD/DVD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the CD/DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. See the *Media care* section in Chapter 4 for details on cleaning.
Some CD/DVDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the CD/DVD's documentation.
	Check the type of CD/DVD you are using. The drive supports: DVD-ROM: DVD-ROM, DVD-Video CD-ROM: CD-DA, CD-Text, Photo CD (single/multi-session), CD-ROM Mode 1, Mode 2, CD-ROM XA Mode 2 (Form1, Form2), Enhanced CD (CD-EXTRA), CD-G (Audio CD only), Addressing Method 2

	Check the region code on the DVD. It must match that on the DVD-ROM drive. Region codes are listed in the *Optical media* section in Chapter 2, *The Grand Tour*.
	If problems persist, contact your dealer.

CD-RW/DVD-ROM drive

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
You cannot access a CD/DVD in the drive	Make sure the drive's drawer is securely closed. Press gently until it clicks into place.
	Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.
	A foreign object in the drawer could block laser light from reading the CD/DVD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the CD/DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. See the *Media care* section in Chapter 4 for details on cleaning.
Some CD/DVDs run correctly, but others do not	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the CD/DVD's documentation.
	Check the type of CD/DVD you are using. The drive supports:

DVD-ROM:	DVD-ROM, DVD-Video
CD-ROM:	CD-DA, CD-Text, Photo CD (single/ multi-session), CD-ROM Mode 1, Mode 2, CD-ROM XA Mode 2 (Form1, Form2), Enhanced CD (CD-EXTRA), CD-G (Audio CD only), Addressing Method 2

Check the region code on the DVD. It must match that on the CD-RW/DVD-ROM drive. Region codes are listed in the *Optical media* section in Chapter 2, *The Grand Tour*.

Cannot write correctly

If you have trouble writing, make sure you are observing the following precautions:

- Use only media recommended by TOSHIBA.
- Do not use the mouse or keyboard during writing.
- Use only the software supplied with the computer for recording.
- Do not run or start other software during writing.
- Do not jar the computer during writing.
- Do not connect/ disconnect external devices or install/remove internal cards during writing.

If problems persist, contact your dealer.

Diskette drive

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Drive does not operate	There may be a faulty cable connection. Check the connection to the computer and to the drive.

You cannot access the external 3 1/2" diskette drive	Try another diskette. If you can access the diskette, the original diskette (not the drive) is probably causing the problem. If problems persist, contact your dealer.

SD card

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
SD card error occurs	Reseat the SD card to make sure it is firmly connected.
	Check the card's documentation.
You cannot write to an SD card	Make sure the card is not write protected.
You cannot read a file	Make sure the target file is on the SD Card inserted in the slot. If problems persist, contact your dealer.

PC card

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
PC card error occurs	Reseat the PC card to make sure it is firmly connected.
	Make sure the connection between the external device and the card is firm.

	Check the card's documentation. If problems persist, contact your dealer.

Infrared port

Refer also to the documentation for your IrDA compatible device and related software.

Problem	Procedure
Infrared devices do not work as expected	Make sure there is no obstruction blocking communication between the computer and the target device. If problems persist, contact your dealer.

Pointing device

If you are using a USB mouse, also refer to the *USB* section in this chapter and to your mouse documentation.

cPad/TouchPad

Problem	Procedure
On-screen pointer does not respond to Pad operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to resume its normal shape and try again to move it.
Double-tapping does not work	Try changing the double-click speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Buttons** tab. 3. Set the double-click speed as instructed and click **OK**.

The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Pointer Options** tab. 3. Set the speed as instructed and click **OK**. If problems persist, contact your dealer.

USB mouse

Problem	Procedure
On-screen pointer does not respond to mouse operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to resume its normal shape and try again to move it.
	Make sure the mouse is properly connected to the USB port.
Double-clicking does not work	Try changing the double-click speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Buttons** tab. 3. Set the double-click speed as instructed and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. Open the **Control Panel**, select the **Mouse** icon and press **Enter**. 2. Click the **Pointer Options** tab. 3. Set the speed as instructed and click **OK**.

The mouse pointer moves erratically	The mouse might be dirty. Refer to your mouse documentations for instructions on cleaning. If problems persist, contact your dealer.

USB

Refer also to your USB device's documentation.

Problem	Procedure
USB device does not work	Check for a firm cable connection between the USB ports on the computer and the USB device.
	Make sure the USB device drivers are properly installed. Refer to your Windows XP documentation for information on checking the drivers. If problems persist, contact your dealer.

Memory expansion

Refer also to Chapter 8, *Optional Devices*, for information on installing memory modules.

Problem	Procedure
The following message is displayed on the Sub LCD: **MEM0 ERROR** or **MEM1 ERROR**	Make sure the memory module installed in the expansion slot is compatible with the computer. If an incompatible module has been installed, follow the steps below. 1. Disconnect the AC adaptor and all peripheral devices 2. Remove the battery. 3. Remove the memory module. 4. Replace the battery and/or connect the AC adaptor.

	5. Turn on the power. If problems persist, contact your dealer.

Sound system

Refer also to documentation for your audio devices.

Problem	Procedure
No sound is heard	Adjust the volume control dial.
	Check the software volume settings.
	Make sure the headphone connection is secure. If problems persist, contact your dealer.
Annoying sound is heard	You may be experiencing feedback. Refer to *Using the microphone* in Chapter 4, *Operating Basics.* If problems persist, contact your dealer.

Monitor

Refer also to Chapter 8, *Optional Devices*, and to your monitor's documentation.

Problem	Procedure
Monitor does not turn on	Make sure that the external monitor's power switch is on. Confirm that the external monitor's power cable is plugged into a working power outlet.
No display	Try adjusting the contrast and brightness controls on the external monitor.

	Press hotkeys **Fn + F5** to change the display priority and make sure it is not set for the internal display.
Display error occurs	Check that the cable connecting the external monitor to the computer is attached firmly. If problems persist, contact your dealer.

i.LINK (IEEE1394)

Problem	Procedure
i.LINK device does not function	Make sure the cable is securely connected to the computer and to the device.
	Make sure the device's power is turned on.
	Reinstall the drivers. Open the Windows Control Panel and double-click the **Add Hardware** icon. Follow the on-screen directions.
	Restart Windows. If problems persist, contact your dealer.

Modem

Refer to the online help files for Appendix C and D.

Problem	Procedure
Communication software can't initialize modem	Make sure the computer's internal modem settings are correct. Refer to *Phone and Modem* Properties in the Control Panel.

You can hear a dial tone but can't make a call	If the call is going through a PBX machine, make sure the communication application's tone dial detection feature is disabled. You can also use the ATX command. Refer to the online help files for Appendix C, AT Commands.
You place a call, but a connection can't be made	Make sure the settings are correct in your communications application.
After making a call you can't hear a ring	Make sure the tone or pulse selection in your communications application is set correctly. You can also use the ATD command. Refer to the online help files for Appendix C, AT Commands.
Communication is cut off unexpectedly	The computer will automatically cut off communication when connection with the carrier is not successful for a set time interval. Try lengthening this time interval.
A **CONNECT** display is quickly replaced by **NO CARRIER**	Check the error control setting in your communications application. You can also use the AT\N command. Refer to the online help files for Appendix C, AT Commands.
Character display becomes garbled during a communication	In data transmission, make sure the parity bit and stop bit settings correspond with those of the remote computer. Check the flow control and communication protocol.

You cannot receive an incoming call	Check the rings before auto answer setting in your communications application. You can also use the ATS0 command. Refer to the online help files for Appendix D, S-registers. If problems persist, contact your dealer.

LAN

Problem	Procedure
Cannot access LAN	Check for a firm cable connection between the LAN jack and the LAN HUB.
Wake-up on LAN does not work	Make sure the AC adaptor is connected. The Wake-up on LAN function consumes power even when the system is off. If problems persist, consult your LAN administrator.

Wireless LAN

If the following procedures do not restore LAN access, consult your LAN administrator. For more information on wireless communication, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Cannot access Wireless LAN	Make sure the computer's wireless communication switch is set to on. If problems persist, contact your LAN administrator or dealer.

Bluetooth

For more information on wireless communication, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Cannot access Bluetooth device	Make sure the computer's wireless communication switch is set to on. Make sure the Bluetooth Manager is running and the power to the Bluetooth device is turned on. Make sure no optical Bluetooth PC card is installed in the computer. The built-in Bluetooth function and an optional Bluetooth PC card cannot operate simutaneously. If problems persist, contact your dealer.

TOSHIBA Remote Control

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
TOSHIBA Remote Control does not work	Make sure you point the TOSHIBA Remote Control toward the computer's Remort Control port. Make sure there is no obstruction between the TOSHIBA Remote Control and the computer. Make sure the TOSHIBA Remote Control is out of direct sunlight or fluorescent light. Change the battery. If problems persist, contact your dealer.

TOSHIBA support

If you require any additional help using your computer or if you are having problems operating the computer, you may need to contact TOSHIBA for additional technical assistance.

Before you call

Some problems you experience may be related to software or the operating system, it is important to investigate other sources of assistance first. Before contacting TOSHIBA, try the following:

- Review troubleshooting sections in the documentation for software and peripheral devices.
- If a problem occurs when you are running software applications, consult the software documentation for troubleshooting suggestions. Call the software company's technical support for assistance.
- Consult the dealer you purchased your computer and/or software from. They are your best sources for current information and support.

Where to write

If you are still unable to solve the problem and suspect that it is hardware related, write to TOSHIBA at the nearest location listed below:

Outside of Europe

Australia

TOSHIBA Australia Pty. Ltd.
Information Systems Division
84-92 Talavera Road
North Ryde N.S.W. 2113
Sydney

Canada

TOSHIBA of Canada Ltd.
191 McNabb Street,
Markham, Ontario
L3R8H2

China

TOSHIBA Computer Systems
(Shanghai) Co., Ltd.
Bldg. 33, No. 351, Jinzang Road,
Pudong New Area,
Shanghai,
P.R. China 201206

Singapore

TOSHIBA Singapore Pte. Ltd.
438B Alexandra Road #06-01
Alexandra Technopark
Singapore 119968

United States of America

TOSHIBA America Information Systems, Inc.

9740 Irvine Boulevard

Irvine, California 92618

USA

In Europe

Germany & Austria

TOSHIBA Europe (I.E.) GmbH

Geschäftsbereich,

Deutschland-Österreich

Hammfelddamm 8,

D-41460 Neuss, Germany

France

TOSHIBA Systèms France S.A.

7, Rue Ampère B.P. 131,

92804 Puteaux Cedex

Netherlands

TOSHIBA Information Systems, Benelux B.V.

Rivium Boulevard

41 2909 LK Capelle a/d IJssel

Spain

TOSHIBA Information Systems, ES-PAÑA

Parque Empresarial San Fernando

Edificio Europa, l[a] Planta,

Escalera A 28830 Madrid

United Kingdom

TOSHIBA Information Systems (U.K.) Ltd.

TOSHIBA Court

Weybridge Business Park

Addlestone Road

Weybridge, Surrey KT15 2UL

The Rest of Europe

TOSHIBA Europe (I.E.) GmbH

Geschäftsbereich,

Deutschland-Österreich

Hammfelddamm 8,

D-41460 Neuss, Germany

Appendix A

Specifications

This appendix summarizes the computer's technical specifications.

Physical Dimensions

Weight (typical)	3.6 kilograms, configured with: UXGA display, fixed CD-RW/DVD-ROM drive, cPad, Weight Saver 3.7 kilograms, configured with: SXGA+ display, fixed DVD-ROM drive, TouchPad, Weight Saver Weight will very with other configurations.
Size	334 (w) x 306 (d) x 34/55(h) millimeters (not including parts that extend beyond the main body)

Environmental Requirements

Conditions	**Ambient temperature**	**Relative humidity**
Operating	5°C (41°F) to 35°C (95°F)	20% to 80%
Non-operating	-20°C (-4°F) to 65°C (149°F)	10% to 95%
Thermal Gradient	20°C per hour maximum	
Wet-bulb temperature	26°C maximum	
Conditions	**Altitude (from sea level)**	
Operating	-60 to 3,000 meters	
Non-operating	-60 to 10,000 meters maximum	

Power Requirements

AC adaptor	100-240 volts AC 50 or 60 hertz (cycles per second)
Computer	15 VDC 5.0 amperes

Built-in Modem

Network control unit (NCU)

Type of NCU	AA
Type of line	Telephone line (analog only)
Type of dialing	Pulse Tone
Control command	AT commands EIA-578 commands
Monitor function	Computer's speaker

Communication specifications

Communication system	Data:	Full duplex
	Fax:	Half duplex
Communication protocol	Data	
	ITU-T-Rec (Former CCITT)	V.21/V.22/V.22bis/V.32 /V.32bis/V.34/V.90
	Bell	103/212A
	Fax	
	ITU-T-Rec (Former CCITT)	V.17/V.29/V.27ter /V.21 ch2
Communication speed	Data transmission and reception 300/1200/2400/4800/7200/9600/12000/14400/ 16800/19200/21600/24000/26400/28800/31200/ 33600 bps Data reception only with V.90 28000/29333/30666/32000/33333/34666/36000/37333/ 38666/40000/41333/42666/44000/45333/46666/48000/ 49333/50666/52000/53333/54666/56000 bps Fax 2400/4800/7200/9600/12000/14400 bps	
Transmitting level	-10 dBm	
Receiving level	-10 to -40 dBm	
Input/output impedance	600 ohms ±30%	
Error correcting	MNP class 4 and ITU-T V.42	
Data compression	MNP class 5 and ITU-T V.42bis	
Power supply	+3.3V (supplied by computer)	

Display Controller and Modes

Display controller

The display controller interprets software commands into hardware commands that turn particular pels on or off.

The controller is an advanced Video Graphics Array (VGA) that provides Extended Graphics Array (XGA), Super Extended Graphics Array Plus (SXGA+) and Ultra Extended Graphics Array (UXGA) support for the internal LCD and external monitors. The 15.0" TFT LCD panel displays up to 1024 horizontal and 768 vertical pixels, 1400 horizontal and 1050 vertical pixels or 1600 horizontal and 1200 vertical pixels.

A high-resolution external monitor connected to the computer can display up to 2048 horizontal and 1536 vertical pixels at 16 M colors.

The display controller also controls the video mode, which uses industry standard rules to govern the screen resolution and the maximum number of colors that can be displayed on screen.

Software written for a given video mode will run on any computer that supports the mode.

The computer's display controller supports all VGA and SVGA modes, the most widely used industry standards.

Video modes

The computer supports video modes defined in the tables below. If your application offers a selection of mode numbers that do not match the numbers on the table, select a mode based on mode type, resolution, character matrix, number of colors and refresh rates. Also, if your software supports both graphics and text modes, the screen display may appear to operate faster using a text mode.

Table1 Video modes (VGA)

Video mode	*Type*	*Resolution*	*Character matrix (pels)*	*LCD colors*	*CRT colors*	*Scanning frequency Vertical (Hz)*
0, 1	VGA Text	40 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70
2, 3	VGA Text	80 x 25 Characters	8 x 8	16 of 256K	16 of 256K	70
0*, 1*	VGA Text	40 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70
2*, 3*	VGA Text	80 x 25 Characters	8 x 14	16 of 256K	16 of 256K	70
0+, 1+	VGA Text	40 x 25 Characters	9 x 16	16 of 256K	16 of 256K	70
2+, 3+	VGA Text	80 x 25 Characters	9 x 16	16 of 256K	16 of 256K	70
4, 5	VGA Grph	320 x 200 Pels	8 x 8	4 of 256K	4 of 256K	70
6	VGA Grph	640 x 200 Pels	8 x 8	2 of 256K	2 of 256K	70
7	VGA Text	80 x 25 Characters	9 x 14	Mono	Mono	70
7+	VGA Text	80 x 25 Characters	9 x 16	Mono	Mono	70

Table1 Video modes (VGA) continued

Video mode	*Type*	*Resolution*	*Character matrix (pels)*	*LCD colors*	*CRT colors*	*Scanning frequency Vertical (Hz)*
D	VGA Grph	320 x 200 Pels	8 x 8	16 of 256K	16 of 256K	70
E	VGA Grph	640 x 200 Pels	8 x 8	16 of 256K	16 of 256K	70
F	VGA Grph	640 x 350 Pels	8 x 14	Mono	Mono	70
10	VGA Grph	640 x 350 Pels	8 x 14	16 of 256K	16 of 256K	70
11	VGA Grph	640 x 480 Pels	8 x 16	2 of 256K	2 of 256K	60
12	VGA Grph	640 x 480 Pels	8 x 16	16 of 256K	16 of 256K	60
13	VGA Grph	320 x 200 Pels	8 x 8	256 of 256K	256 of 256K	70

Table 2 Video modes (XGA)

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	256/256K	256/256K	60 75 85 100
800 x 600	256/256K	256/256K	60 75 85 100
1024 x 768	256/256K	256/256K	60 75 85 100
1280 x 1024	256/256K (Virtual)	256/256K	60 75 85 100
1600 x 1200	256/256K (Virtual)	256/256K	60 75 85 100
1920 x 1440	256/256K (Virtual)	256/256K	60 75 85
2048 x 1536	256/256K (Virtual)	256/256K	60 75

Table 2 Video modes (XGA) continued

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	64K/64K	64K/64K	60 75 85 100
800 x 600	64K/64K	64K/64K	60 75 85 100
1024 x 768	64K/64K	64K/64K	60 75 85 100
1280 x 1024	64K/64K (Virtual)	64K/64K	60 75 85 100
1600 x 1200	64K/64K (Virtual)	64K/64K	60 75 85 100
1920 x 1440	64K/64K (Virtual)	64K/64K	60 75 85
2048 x 1536	64K/64K (Virtual)	64K/64K	60 75

Table 2 Video modes (XGA) continued

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	16M/16M	16M/16M	60 75 85 100
800 x 600	16M/16M	16M/16M	60 75 85 100
1024 x 768	16M/16M	16M/16M	60 75 85 100
1280 x 1024	16M/16M (Virtual)	16M/16M	60 75 85 100
1600 x 1200	16M/16M (Virtual)	16M/16M	60 75 85 100
1920 x 1440	16M/16M (Virtual)	16M/16M	60 75
2048 x 1536	16M/16M (Virtual)	16M/16M	60

Table 3 Video modes (Super XGA+)

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	256/256K	256/256K	60 75 85 100
800 x 600	256/256K	256/256K	60 75 85 100
1024 x 768	256/256K	256/256K	60 75 85 100
1280 x 1024	256/256K	256/256K	60 75 85 100
1400 x 1050	256/256K	256/256K	60 75 85 100
1600 x 1200	256/256K (Virtual)	256/256K	60 75 85 100
1920 x 1440	256/256K (Virtual)	256/256K	60 75 85
2048 x 1536	256/256K (Virtual)	256/256K	60 75

Table 3 Video modes (Super XGA+) continued

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	64K/64K	64K/64K	60 75 85 100
800 x 600	64K/64K	64K/64K	60 75 85 100
1024 x 768	64K/64K	64K/64K	60 75 85 100
1280 x 1024	64K/64K	64K/64K	60 75 85 100
1400 x 1050	64K/64K	64K/64K	60 75 85 100
1600 x 1200	64K/64K (Virtual)	64K/64K	60 75 85 100
1920 x 1440	64K/64K (Virtual)	64K/64K	60 75 85
2048 x 1536	64K/64K (Virtual)	64K/64K	60 75

Table 3 Video modes (Super XGA+) continued

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	16M/16M	16M/16M	60 75 85 100
800 x 600	16M/16M	16M/16M	60 75 85 100
1024 x 768	16M/16M	16M/16M	60 75 85 100
1280 x 1024	16M/16M	16M/16M	60 75 85 100
1400 x 1050	16M/16M	16M/16M	60 75 85 100
1600 x 1200	16M/16M (Virtual)	16M/16M	60 75 85 100
1920 x 1440	16M/16M (Virtual)	16M/16M	60 75
2048 x 1536	16M/16M (Virtual)	16M/16M	60

Table 4 Video modes (Ultra XGA)

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	256/256K	256/256K	60 75 85 100
800 x 600	256/256K	256/256K	60 75 85 100
1024 x 768	256/256K	256/256K	60 75 85 100
1280 x 1024	256/256K	256/256K	60 75 85 100
1600 x 1200	256/256K	256/256K	60 75 85 100
1920 x 1440	256/256K (Virtual)	256/256K	60 75 85
2048 x 1536	256/256K (Virtual)	256/256K	60 75

Table 4 Video modes (Ultra XGA) continued

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	64K/64K	64K/64K	60 75 85 100
800 x 600	64K/64K	64K/64K	60 75 85 100
1024 x 768	64K/64K	64K/64K	60 75 85 100
1280 x 1024	64K/64K	64K/64K	60 75 85 100
1600 x 1200	64K/64K	64K/64K	60 75 85 100
1920 x 1440	64K/64K (Virtual)	64K/64K	60 75 85
2048 x 1536	64K/64K (Virtual)	64K/64K	60 75

Table 4 Video modes (Ultra XGA) continued

Resolution	*LCD colors*	*CRT colors*	*Vertical frequency (Hz)*
640 x 480	16M/16M	16M/16M	60 75 85 100
800 x 600	16M/16M	16M/16M	60 75 85 100
1024 x 768	16M/16M	16M/16M	60 75 85 100
1280 x 1024	16M/16M	16M/16M	60 75 85 100
1600 x 1200	16M/16M	16M/16M	60 75 85 100
1920 x 1440	16M/16M (Virtual)	16M/16M	60 75
2048 x 1536	16M/16M (Virtual)	16M/16M	60

AT Commands

In most cases, you will not need to type AT commands manually. However, there might be some occasions when you will need to do so.

This chapter describes AT commands for data mode. Fax and voice commands are taken care of by application software.

The format for entering AT commands is:

ATXn

where **X** is the AT command, and **n** is the specific value for that command. After you type in the command press **Enter**.

Any command issued is acknowledged with a response in either text or numeric values known as result codes.

All commands and command-values accepted by the modem are described in this section; any entry other than those listed results in an error.

+++ Escape sequence

The escape sequence allows the modem to exit data mode and enter on-line command mode. While in on-line command mode, you can communicate directly to your modem using AT commands. Once you finish, you can return to data mode using the ATO command.

A pause, the length of which is set by Escape Guard Time (S12), must be completed after an escape sequence is entered, This pause prevents the modem from interpreting the escape sequence as data.

The value of the escape sequence character may be changed using register S2.

A/ Repeat last command

This command repeats the last command string entered. Do not precede this command with an AT prefix or conclude it by pressing **Enter**.

A Answer command

This command instructs the modem to go off-hook and answer an incoming call.

Bn Communication standard setting

This command determines the communication standard CCITT or Bell.

B0 Selects CCITT V.22 mode when the modem is at 1200 bps.

B1 Selects Bell 212A when the modem is at 1200 bps (default).

B15 Selects V.21 when the modem is at 300 bps.

B16 Selects Bell 103J when the modem is at 300 bps (default).

Result Codes:

0K n=0,1,15,16

ERR0R Otherwise

Dn Dial

This command instructs the modem to dial a telephone number. Enter n (the telephone number and any modifiers) after the ATD command.

Any digit or symbol (0-9, *, #, A, B, C, D) may be dialed as touch-tone digits. Characters such as spaces, hyphens, and parentheses do not count. They are ignored by the modem, but you may want to include them to make the number and modifiers easier to read.

The following may be used as phone number modifiers:

P Pulse dialing.

T Touch-tone dialing (default).

, Pause during dialing. Pause for time specified in Register S8 before processing the next character in the dial string.

W Wait for dial tone. Modem waits for a second dial tone before processing the dial string.

@ Wait for quiet answer. Wait for five seconds of silence after dialing the number. If silence is not detected, the modem sends a NO ANSWER result code back to the caller.

! Hook flash. Causes the modem to go on-hook for 0.5 seconds and then return to off-hook.

; Return to command mode. Causes the modem to return to command mode after dialing a number, without disconnecting the call.

S=n Dial a telephone number previously stored using the &Zn=X command (See &Zn=X command for more information). The range is 0-3.

En Echo command

This command controls whether or not the characters entered from your computer keyboard are displayed on your monitor (echoed) while the modem is in command mode.

E0 Disables echo to the computer.

E1 Enables echo to the computer (default).

Result Codes:

OK n=0,1

ERROR Otherwise

Hn Hook control

This command instructs the modem to go on-hook to disconnect a call, or off-hook to make the phone line busy.

H0 Modem goes on-hook (default).

H1 Modem goes off-hook.

Result Codes:

OK n=0,1

ERROR Otherwise

In Request ID information

This command displays product information about the modem.

I0 Returns modem identity string and driver version number.

I3 Same as **I0**.

I9 Returns region ID in English.

Result Codes:

OK n=0,3,9

ERROR Otherwise

Ln Monitor speaker volume

This command sets speaker volume to low, medium, or high.

L0 Low volume.

L1 Low volume. (Same as **L0**)

L2 Medium volume (default).

L3 High volume.

Result Codes:

OK n=0,1,2,3

ERROR Otherwise

Mn Monitor speaker mode

This command turns the speaker on or off.

M0 The speaker is off.

M1 The speaker is on until the modem detects the carrier signal (default).

M2 The speaker is always on when modem is off-hook.

M3 Speaker is on until the carrier is detected, except when dialing.

Result Codes:

OK n=0,1,2,3

ERROR Otherwise

Nn Modulation handshake

This command controls whether or not the local modem performs a negotiated handshake at connection time with the remote modem when the communication speed of the two modems is different.

N0 When originating or answering, this is for handshake only at the communication standard specified by S37 and the ATB command.

N1 When originating or answering, begin the handshake at the communication standard specified by S37 and the ATB command (default).

During handshake, a lower transmission speed may be selected.

Result Codes:

OK n=0,1

ERROR Otherwise

On Return on-line to data mode

O0 Instructs the modem to exit on-line command mode and return to data mode (see AT escape sequence, +++).

O1 This command issues a retrain before returning to on-line data mode.

O3 This command issues a rate renegotiation before returning to on-line data mode.

Result Codes:

OK n=0,1,3

ERROR Otherwise

P Select pulse dialing

This command configures the modem for pulse (non touch-tone) dialing. Dialed digits are pulsed until a T command or dial modifier is received. Tone dial is the default setting.

Qn Result code control

Result codes are informational messages sent from the modem and displayed on your monitor. Basic result codes are **OK**, **CONNECT**, **RING**, **NO CARRIER**, and **ERROR**. The ATQ command allows the user to turn result codes on or off.

Q0 Enables modem to send result codes to the computer (default).

Q1 Disables modem from sending result codes to the computer.

Result Codes:

OK n=0,1

ERROR Otherwise

T Select tone dialing

This command instructs the modem to send DTMF tones while dialing. Dialed digits are tone dialed until a P command or dial modifier is received. This is the default setting.

Vn DCE response format

This command controls whether result codes (including call progress and negotiation progress messages) are displayed as words or their numeric equivalents.

V0 Displays result codes as digits.

V1 Displays result codes as text (default).

Result Codes:

OK n=0,1

ERROR Otherwise

Xn Result code selection, call progress monitoring

This command selects which result codes will be used by the modem.

Command	Dial tone detect	Busy signal detect	Supported Result Code
X0	Disable	Disable	OK, CONNECT, RING, NO CARRIER, ERROR
X1	Disable	Disable	OK, RING, NO CARRIER, ERROR, CONNECT <RATE>
X2	Enable	Disable	OK, RING, NO CARRIER, ERROR, NODIALTONE, CONNECT <RATE>
X3	Disable	Enable	OK, RING, NO CARRIER, ERROR, BUSY, CONNECT <RATE>, BLACKLISTED
X4 (default)	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED

X5	Enable	Enable	OK, RING, NO CARRIER, ERROR, NODIALTONE, BUSY, CONNECT <RATE>, RRING, NO BONGTONE, DELAYED, BLACKLISTED, REORDER, WARBLE, CALL WAITING DETECTED

Dial tone detect

Disabled: The modem dials a call regardless of whether it detects a dial tone.

Enabled: The modem dials only upon detection of a dial tone, and disconnects the call if the dial tone is not detected within 10 seconds.

Busy tone detect

Disabled: The modem ignores any busy tones it receives.

Enabled: The modem monitors for busy tones.

Result Codes:

OK n=0,1,2,3,4,5

ERROR Otherwise

Zn Recall stored profile

The modem performs a soft reset and restores (recalls) the configuration profile according to the parameter supplied. If no parameter is specified, zero is assumed. Either Z0 or Z1 restores the profile.

Result Codes:

OK n=0,1

ERROR Otherwise

&Cn Data Carrier Detect (DCD) control

Data Carrier Detect is a signal from the modem to the computer indicating that a carrier signal is being received from a remote modem. DCD normally turns off when the modem no longer detects the carrier signal.

&C0 The state of the carrier from the remote modem is ignored. DCD circuit is always on.

&C1 DCD turns on when the remote modem's carrier signal is detected, and off when the carrier signal is not detected (default).

Result Codes:

0K n=0,1

ERR0R Otherwise

&Dn DTR control

This command interprets how the modem responds to the state of the DTR signal and changes to the DTR signal.

&D0 Ignore. The modem ignores the true status of DTR and treats it as always on. This should only be used if your communication software does not provide DTR to the modem

&D1 If the DTR signal is not detected while in on-line data mode, the modem enters command mode, issues an **0K** result code, and remains connected.

&D2 If the DTR signal is not detected while in on-line data mode, the modem disconnects (default).

&D3 Reset on the on-to-off DTR transition.

Result Codes:

0K n=0,1,2,3

ERR0R Otherwise

&F Load factory settings

This command loads the configuration stored and programmed at the factory. This operation replaces all of the command options and the S-register settings in the active configuration with factory values.

&F Recall factory setting as active configuration.

&Gn V.22bis guard tone control

This command determines which guard tone, if any, to transmit while transmitting in the high band (answer mode). This command is only used in V.22 and V.22bis mode. This option is not used in North America and is for international use only.

&G0 Guard tone disabled (default).

&G1 Sets guard tone to 550 Hz.

&G2 Sets guard tone to 1800 Hz.

Result Codes:

OK n=0,1,2

ERROR Otherwise

&Kn Local flow control selection

&K0 Disable flow control.

&K3 Enable CTS/RTS flow control (default).

&K4 Enable XON/XOFF flow control.

Result Codes:

OK n=0,3,4

ERROR Otherwise

&Pn Select Pulse Dial Make/Break Ratio (WW)

&P0 Selects 39% - 61% make/break ratio at 10 pulses per second.

&P1 Selects 33% - 67% make/break ratio at 10 pulses per second.

&P2 Selects 33% - 67% make/break ratio at 20 pulses per second.

Result Codes:

OK n=0,1,2

ERROR Otherwise

&Tn Self-test commands

These tests can help to isolate problems if you experience periodic data loss or random errors.

&T0 Abort. Stops any test in progress.

&T1 Local analog loop. This test verifies modem operation, as well as the connection between the modem and computer. Any data entered at the local DTE is modulated, then demodulated, and returned to the local DTE. To work properly, the modem must be off-line.

Result Codes:

OK n=0

CONNECT n=1

ERROR Otherwise

&V Display Current Configuration

This command displays the current configuration of the modem. If nonvolatile memory is supported the stored profiles are displayed as well.

&V View profiles.

&W Store current configuration

Saves the current (active) configuration (profile), including S-Registers.

The current configuration comprises a list of storable parameters illustrated in the **&V** command. These settings are restored to the active configuration upon receiving a **Zn** command or at power up. Refer to the **&V** command.

&W Stores the current configuration.

&Zn=x Store telephone number

This command is used to store up to four dialing strings in the modem's nonvolatile memory for later dialing. The format for the command is **&Zn**="stored number" where n is the location 0-3 to which the number should be written. The dial string may contain up to 34 characters. The ATDS=n command dials using the string stored in location n.

Result codes:

OK n=0, 1, 2, 3

ERROR Otherwise

\Nn Error control mode selection

This command determines the type of error control used by the modem when sending or receiving data.

\N0 Buffer mode. No error control.

\N1 Direct mode.

\N2 MNP or disconnect mode. The modem attempts to connect using MNP2-4 error control procedures. If this fails, the modem disconnects.

This is also known as MNP reliable mode.

\N3 V.42, MNP, or buffered (default).

The modem attempts to connect in V.42 error control mode. If this fails, it attempts to connect in MNP mode. If this fails, it connects in buffer mode and continues operation. This is also known as V.42/MNP auto reliable mode (same as **&Q5**).

\N4 V.42 or disconnect. The modem attempts to connect in V.42 error control mode. If this fails, the modem disconnects.

\N5 V.42. MNP or buffered (same as **\N3**).

\N7 V.42. MNP or buffered (same as **\N3**).

Result Codes:

OK n=0,1,2,3,4,5,7

ERROR Otherwise

\Qn Local flow control selection

\Q0 Disable flow control.

\Q1 XON/XOFF software flow control.

\Q3 CTS/RTS to DTE (default).

Result Codes:

OK n=0,1,3

ERROR Otherwise

\Vn Protocol result code

\V0 Disable protocol result code appended to DCE speed.

\V1 Enable protocol result code appended to DCE speed (default).

Result Codes:

OK n=0,1

ERROR Otherwise

%B View numbers in blacklist

If blacklisting is in effect, this command displays the numbers for which the last call attempted in the past two hours failed. The ERROR result code appears in regions that do not require blacklisting.

%Cn Data compression control

This command determines the operation of V.42bis and MNP class 5 data compression. On-line changes do not take effect until a disconnect occurs first.

%C0 V.42bis/MNP 5 disabled. No data compression.

%C3 V.42bis/MNP 5 enabled. Data compression enabled (default).

Result Codes:

OK n=0,3

ERROR Otherwise

S-registers

S-registers contain the settings that determine how a number of functions of the internal modem operate. For example, how many times to let the telephone ring before the modem answers and how long to wait before it hangs up if a connection fails. You can also customize certain AT commands such as the escape sequence and command line termination.

The contents of the registers are changed automatically when you modify corresponding settings in your communication software. If you choose, however, you can display and edit the contents of the registers manually when the modem is in command mode. If the value is out of the acceptable range, then an error is generated.

This chapter describes the settings for each S-register.

S-register values

The format for displaying the value of an S-register is:

ATSn?

where **n** is the register number. After you type in the register press **Enter**.

The format for modifying the value of an S-register is:

ATSn=r

where **n** is the register number, and **r** is the new register value. After you type in the register and its new value press **Enter**.

NOTE: *Some registers vary from one country/region to another.*

S0 Auto answer ring number

This register determines the number of rings the modem will count before automatically answering a call. Enter 0 (zero) if you do not want the modem to automatically answer at all. When disabled, the modem can only answer with an ATA command.

Range: 0-255

Default: 0

Units: rings

S1 Ring counter

This register is read only. The value of S1 is incremented with each ring. If no ring occurs over a six-second interval, this register is cleared.

Range: 0-225

Default: 0

Units: rings

S2 AT escape character (user defined)

This register determines the ASCII values used for an escape sequence. The default is the + character. The escape sequence allows the modem to exit data mode and enter command mode when on-line. Values greater than 127 disable the escape sequence.

Range: 0-255, ASCII decimal

Default: 43

Units: ASCII

S3 Command line termination character (user defined)

This register determines the ASCII values as the carriage return character. This character is used to end command lines and result codes.

Range: 0-127, ASCII decimal

Default: 13 (carriage return)

Units: ASCII

S4 Response formatting character (user defined)

This register determines the ASCII value used as the line feed character. The modem uses a line feed character in command mode when it responds to the computer.

Range: 0-127, ASCII decimal

Default: 10 (line feed)

Units: ASCII

S5 Command line editing character (user defined)

This register sets the character recognized as a backspace and pertains to asynchronous only. The modem will not recognize the backspace character if it is set to a value that is greater than 32 ASCII. This character can be used to edit a command line. When the echo command is enabled, the modem echoes back to the local DTE the backspace character, an ASCII space character, and a second backspace character. This means a total of three characters are transmitted each time the modem processes the backspace character.

Range: 0-127, ASCII decimal

Default: 8 (backspace)

Units: ASCII

S6 Wait before dialing

This register sets the length of time, in seconds, that the modem must wait (pause) after going off-hook before dialing the first digit of the telephone number. The modem always pauses for a minimum of two seconds, even if the value of S6 is less that two seconds. The wait for dial tone call progress feature (W dial modifier in the dial string) will override the value in register S6. This operation, however, may be affected by some ATX options according to country/region restrictions. In some countries/regions, S6 will set dial tone detect time.

Range: 3-255

Default: 3

Units: seconds

S7 Connection completion time-out

This register sets the time, in seconds, that the modem must wait before hanging up because carrier is not detected. The timer is started when the modem finishes dialing (originate), or goes off-hook (answer). In originate mode, the timer is reset upon detection of an answer tone if allowed by county restriction. The timer also specifies the wait for silence time for the @ dial modifier in seconds. S7 is not associated with the W dial modifier.

Range: 1-255

Default: 50

Units: seconds

S8 Comma pause time

This register sets the time, in seconds, that the modem must pause when it encounters a comma (,) in the dial command string. In some countries/regions, S8 will set both wait before dialing and comma pause time.

Range: 0-255

Default: 2

Units: seconds

S11 DTMF dialing speed

This register determines the dialing speed which is prefixed for each country/region.

Range: 50-255

Default: 95

Units: .001 seconds

S12 Escape guard time

This register sets the value (in 20 millisecond increments) for the required pause after the escape sequence.

Range: 0-255

Default: 50

Units: .02 seconds

S37 Dial line rate

S37 = 0 (default)	maximum modem speed
S37 = 1	reserved
S37 = 2	1200/75 bps
S37 = 3	300 bps
S37 = 4	reserved
S37 = 5	1200 bps
S37 = 6	2400 bps
S37 = 7	4800 bps
S37 = 8	7200 bps
S37 = 9	9600 bps
S37 = 10	12000 bps
S37 = 11	14400 bps
S37 = 12	16800 bps
S37 = 13	19200 bps
S37 = 14	21600 bps
S37 = 15	24000 bps
S37 = 16	26400 bps
S37 = 17	28800 bps
S37 = 18	31200 bps
S37 = 19	33600 bps

AT command set result codes

The following table shows the result codes.

The result code summary

Result Code	Numeric	Description
OK	0	Command executed
CONNECT	1	Modem connected to line
RING	2	A ring signal has been detected
NO CARRIER	3	Modem lost carrier signal, or does not detect carrier signal, or does not detect answer tone
ERROR	4	Invalid command
CONNECT 1200 EC*1	5	Connection at 1200 bps
NO DIAL TONE	6	No dial tone detected
BUSY	7	Busy signal detected
NO ANSWER	8	No quiet answer
CONNECT 2400 EC*1	10	Connection at 2400 bps
CONNECT 4800 EC*1	11	Connection at 4800 bps
CONNECT 9600 EC*1	12	Connection at 9600 bps
CONNECT 14400 EC*1	13	Connection at 14400 bps
CONNECT 19200 EC*1	14	Connection at 19200 bps
CONNECT 7200 EC*1	24	Connection at 7200 bps
CONNECT 12000 EC*1	25	Connection at 12000 bps
CONNECT 16800 EC*1	86	Connection at 16800 bps
CONNECT 300 EC*1	40	Connection at 300 bps
CONNECT 21600 EC*1	55	Connection at 21600 bps
CONNECT 24000 EC*1	56	Connection at 24000 bps
CONNECT 26400 EC*1	57	Connection at 26400 bps
CONNECT 28800 EC*1	58	Connection at 28800 bps
CONNECT 31200 EC*1	59	Connection at 31200 bps
CONNECT 33600 EC*1	60	Connection at 33600 bps

Result Code	Numeric	Description
DELAYED*2	88	Delay is in effect for the dialed number
BLACKLISTED*2	89	Dialed number is blacklisted
BLACKLIST FULL*2	90	Blacklist is full

*1: *EC only appears when the Extended Result Codes configuration option is enabled. EC is replaced by one of the following symbols, depending upon the error control method used:*

V.42bis - V.42 error control and V.42bis data compression.

V.42 - V.42 error control only.

MNP 5 - MNP class 4 error control and MNP class 5 data compression.

MNP 4 - MNP class 4 error control only.

NoEC - No error control protocol.

*2: *In some countries/regions, these result codes may not appear.*

V.90

The TOSHIBA internal modem uses V.90 technology. The modem is capable of downstream speeds of 56Kbps (kilobits per second) when connected to an Internet service provider that supports V.90. As with any modem, the actual throughput (speed of data transfer) depends on analog telephone line conditions, which can vary considerably. Therefore, many users will experience throughput in the range of 28-50Kbps under normal telephone line conditions. Upstream data flows at the V.34 rate.

> ***NOTE:*** *V.90 rates can be achieved only when one V.90-capable host modem is connected to another. The TOSHIBA Internal modem will select automatically V.34 if the remote modem lacks V.90 capability or if a combination of network and/or phone line conditions prevent V.90 connection.*

V.90 mode

Function	Transmission speed
Data V.90	From 56K (maximum) to 28Kbps (minimum) Reception only

Table E-1 Result codes for a V.90 connection

No.	Result code	Description
70	CONNECT 32000 EC*	Connection at 32000 bps
72	CONNECT 36000 EC*	Connection at 36000 bps
74	CONNECT 40000 EC*	Connection at 40000 bps
76	CONNECT 44000 EC*	Connection at 44000 bps
78	CONNECT 48000 EC*	Connection at 48000 bps
80	CONNECT 52000 EC*	Connection at 52000 bps
82	CONNECT 56000 EC*	Connection at 56000 bps
100	CONNECT 28000 EC*	Connection at 28000 bps
101	CONNECT 29333 EC*	Connection at 29333 bps
102	CONNECT 30666 EC*	Connection at 30666 bps
103	CONNECT 33333 EC*	Connection at 33333 bps
104	CONNECT 34666 EC*	Connection at 34666 bps
105	CONNECT 37333 EC*	Connection at 37333 bps
106	CONNECT 38666 EC*	Connection at 38666 bps
107	CONNECT 41333 EC*	Connection at 41333 bps
108	CONNECT 42666 EC*	Connection at 42666 bps
109	CONNECT 45333 EC*	Connection at 45333 bps
110	CONNECT 46666 EC*	Connection at 46666 bps
111	CONNECT 49333 EC*	Connection at 49333 bps
112	CONNECT 50666 EC*	Connection at 50666 bps
113	CONNECT 53333 EC*	Connection at 53333 bps
114	CONNECT 54666 EC*	Connection at 54666 bps

* EC stands for the Error Control method, which appears only when the extended result codes configuration option is enabled. EC is replaced by one of the following symbols, depending on the error control method used.

V42bis	V.42 error control and V.42bis data compression
V42	V.42 error control only
NoEC	No error control protocol

AT Command

-V90=* V.90 Dial Line Rate

-V90 sets the maximum V.90 downstream that the modem attempts to connect.

-V90=0 V.90 disabled

-V90=1 V.90 enabled: automatic speed selection - maximum modem speed (default)

Appendix F

Internal Modem Guide

This appendix describes how to install and the remove the internal modem.

> ***CAUTION:*** *Do not disassemble the computer beyond the steps described in this instruction or touch any components not specifically described.*

Installing the internal modem

> ***NOTE:*** *The internal modem is preinstalled. The following is for information only.*

To install the internal modem follow the procedures below.

Installing the modem board and jack

To install the modem board and jack, follow the steps below.

1. Save your data and turn off the computer.
2. Disconnect the AC adaptor and other peripheral devices.
3. Turn the computer upside down and remove the battery pack.
4. Remove one screw securing the cover.
5. Slip your fingernail or a narrow object into a notch under the cover and lift off the cover.
6. Remove two screws, which you use later to secure the modem board.
7. Connect the modem board cable and seat the modem board.
8. Secure the modem board with two screws removed in step 6.
9. Secure the cover with one screw.

Removing the internal modem

To remove the internal modem, follow the steps below.

1. Save your data and turn off the computer.
2. Disconnect the AC adaptor and any other peripheral device.
3. Turn the computer upside down and remove the battery pack.
4. Remove one screw securing the cover.
5. Remove the modem cover.
6. Remove two screws and remove the modem board.
7. Disconnect the modem cable.
8. Secure the modem cover with one screw.
9. Install the battery pack.

Refer to the installation procedures for details.

Wireless LAN

This document is intended to help you get your Wireless LAN network up and running, with a minimum of parameters.

Card specifications

Table G-1 Physical specifications

Form Factor	Mini-PCI TypeIIIA	
Dimensions		
Weight		
Temperature and Humidity		
Operation	0 to 55 C	Maximum humidity 95%
Transit	-20 to 70 C	15 to 95% (no condensation)
Storage	-10 to 60 C	10 to 90% (no condensation)

Although the card may still operate in the range of –20 to 70 C, operation outside the range of 0 to 55 C may no longer be according to specifications.

Table G-2 Power Characteristic

Doze Mode	45mA
Receive Mode	250mA
Transmit Mode	350mA
Power Supply	3.3V

Table G-3 Networking Characteristics

Compatibility	■ IEEE 802.11 Standard for Wireless LANS (DSSS) ■ Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA)

Network Operating System	■ Microsoft Windows® Networking
Host Operating System	Microsoft Windows® XP ■ NDIS5.1 Miniport Driver
Media Access Protocol	CSMA/CA (Collision Avoidance) with Acknowledgment (ACK)
Data Rate	■ High 11 Mb/s ■ Medium 5.5 Mb/s ■ Standard 2 Mb/s ■ Low 1 Mb/s The cards use an automatic Transmit Rate Select mechanism.

Radio characteristics

Radio characteristics of Wireless LAN cards may vary according to:

- Country/region where the product was purchased
- Type of product

Wireless communication is often subject to local radio regulations. Although Wireless LAN networking products have been designed for operation in the license-free 2.4 GHz band, local radio regulations may impose limitations on the use of Wireless communication equipment.

> ***NOTE:*** *Refer to the flyer* Information to the User *for regulatory information that may apply in your country/region.*

Table G-4 Radio characteristics

R-F Frequency Band	2.4GHz (2400-2483.5 MHz)
Modulation Technique	Direct Sequence Spread Spectrum ■ CCK for High & Medium Transmit Rate ■ DQPSK for Standard Transmit Rate ■ DBPSK for Low Transmit Rate
Spreading	11-chip Barker Sequence
Bit Error Rate (BER)	Better than 10^{-5}

Nominal Output Power	15 dBm			
Transmit Rate	High Speed 11 Mb/s	Medium Speed 5.5 Mb/s	Standard Speed 2 Mb/s	Low Speed 1Mb/s
Receiver Sensitivity	-83 dBm	-87 dBm	-91 dBm	-94 dBm
Delay Spread (at FER of <1%)	65 ns	225 ns	400 ns	500 ns

The range of the Wireless signal is related to the Transmit Rate of the Wireless communication. Communications at lower Transmit range may travel longer distances.

> ***NOTE:*** *The range values listed in Table G-4 are typical distances as measured at the TOSHIBA Wireless LAN laboratories. These values provide rule-of-thumb guides. They may vary according to the actual radio conditions at the location where the Wireless LAN product is installed.*

- The range of your Wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.
- Range is also affected by obstacles in the signal path of the radio that may either absorb or reflect the radio signal.

Table G-4 lists the typical ranges when used indoors in office environments such as the following:

- In **Open Office environments**, where antennas can see each other, i.e. there are no physical obstructions between them.
- In **Semi-open Office environments**, where work space is divided by shoulder-height, hollow wall elements; antennas are at desktop level.
- In **Closed Office environments**, work space is separated by floor-to-ceiling solid walls.

Supported frequency sub-bands

Subject to the radio regulations that apply in your country/region, your Wireless LAN card may support a different set of 2.4 GHz channels (see Table G-5).

Consult your Authorized Wireless LAN or TOSHIBA Sales office for information about the radio regulations that apply in your country/region.

Table G-5 Wireless IEEE 802.11 Channels Sets

Frequency Range	2400-2483.5 MHz
Channel ID	
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	**2457***
11	2462

* Factory-set default channels

When installing Wireless LAN cards, the channel configuration is managed as follows:

- For Wireless clients that operate in a Wireless LAN Infrastructure, the Wireless LAN card will automatically start operation at the channel identified by the Wireless LAN Access Point. When roaming between different access points the station can dynamically switch to another channel if required.
- For Wireless LAN cards installed in Wireless clients operating in a peer-to-peer mode, the card will use the default channel 10.
- In a Wireless LAN Access Point, the Wireless LAN card will use the factory-set default channel (printed in bold), unless the LAN Administrator selected a different channel when configuring the Wireless LAN Access Point device.

AC Power Cord and Connectors

The power cord's AC input plug must be compatible with the various international AC power outlets and the cord must meet the standards for the country/region in which it is used. All cords must meet the following specifications:

Length:	Minimum 2 meters
Wire size:	Minimum 0.75 mm^2
Current rating:	Minimum 2.5 amperes
Voltage rating:	125 or 250 VAC (depending on country/region's power standards)

Certification agencies

U.S. and Canada: UL listed and CSA certified

No. 18 AWG, Type SVT or SPT-2 two conductor

Europe:

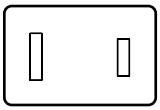
Austria:	OVE	Italy:	IMQ
Belgium:	CEBEC	The Netherlands:	KEMA
Denmark:	DEMKO	Norway:	NEMKO
Finland:	SETI	Sweden:	SEMKO
France:	UTE	Switzerland:	SEV
Germany:	VDE	United Kingdom:	BSI
Australia:	AS		
Japan:	DENANHO		

In Europe, power cords must be VDE type, H05VVH2-F and two conductor.

For the United States and Canada, plug configuration must be a 2-15P (250 V) or 1-15P (125 V) as designated in the U.S. National Electrical code handbook and the Canadian Electrical Code Part II.

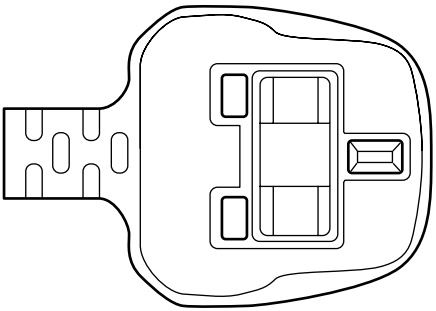
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.

USA and Canada



UL approved
CSA approved

United Kingdom



BS approved

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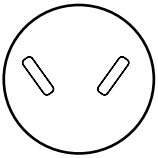

AS approved

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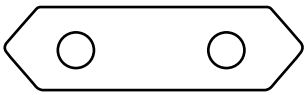

Approved by the appropriate agency

Glossary

The terms in this glossary cover topics related to this manual. Alternate naming is included for reference.

Abbreviations

AC: alternating current

AGP: accelerated graphics port

ANSI: American National Standards Institute

APM: advanced power manager

ASCII: American Standard Code for Information Interchange

BIOS: basic input output system

CD-ROM: Compact Disk-Read Only Memory

CD-RW: Compact Disk-Read/Write

CMOS: complementary metal-oxide semiconductor

CPU: central processing unit

CRT: cathode ray tube

DC: direct current

DDC: display data channel

DMA: direct memory access

DOS: disk operating system

DVD: digital versatile disk

ECP: extended capabilities port

FDD: floppy disk drive

FIR: fast infrared

HDD: hard disk drive

IDE: integrated drive electronics

I/O: input/output

IrDA: Infrared Data Association

IRQ: interrupt request

KB: kilobyte

LCD: liquid crystal display

LED: light emitting diode

LSI: large scale integration

MS-DOS: Microsoft Disk Operating System

OCR: optical character recognition (reader)

PCB: printed circuit board

PCI: peripheral component interconnect

RAM: random access memory

RGB: red, green, and blue

ROM: read only memory

RTC: real time clock

SCSI: small computer system interface

SIO: serial input/output

SXGA+: super extended graphics array plus

(Abbreviations continued)

TFT: thin-film transistor

UART: universal asynchronous receiver/transmitter

USB: Universal Serial Bus

UXGA: ultra extended graphics array

VESA: Video Electronic Standards Association

VGA: video graphics array

VRT: voltage reduction technology

XGA: extended graphics array

A

adaptor: A device that provides an interface between two dissimilar electronic devices. For example, the AC adaptor modifies the power from a wall outlet for use by the computer. This term also refers to the add-in circuit cards that control external devices, such as video monitors and magnetic tape devices.

allocate: To assign a space or function for a specific task.

alphanumeric: Keyboard characters including letters, numbers and other symbols, such as punctuation marks or mathematical symbols.

alternating current (AC): Electric current that reverses its direction of flow at regular intervals.

analog signal: A signal whose characteristics such as amplitude and frequency vary in proportion to (are an analog of) the value to be transmitted. Voice communications are analog signals.

ANSI: American National Standards Institute. An organization established to adopt and define standards for a variety of technical disciplines. For example, ANSI defined the ASCII standard and other information processing requirements.

antistatic: A material used to prevent the buildup of static electricity.

application: A group of programs that together are used for a specific task such as accounting, financial planning, spreadsheets, word processing and games.

ASCII: American Standard Code for Information Interchange. ASCII code is a set of 256 binary codes that represent the most commonly used letters, numbers, and symbols.

async: Short for asynchronous.

asynchronous: Lacking regular time relationship. As applied to computer communications, asynchronous refers to the method of transmitting data that does not require a steady stream of bits to be transmitted at regular time intervals.

B

backup: A duplicate copy of files kept as a spare in case the original is destroyed.

batch file: A file that can be executed from the system prompt containing a sequence of operating system commands or executable files.

binary: The base two number system composed of zeros and ones (off or on), used by most digital computers. The right-most digit of a binary number has a value of 1, the next a value of 2, then 4, 8, 16, and so on. For example, the binary number 101 has a value of 5. *See also* ASCII.

BIOS: Basic Input Output System. The firmware that controls data flow within the computer. *See also* firmware.

bit: Derived from "binary digit," the basic unit of information used by the computer. It is either zero or one. Eight bits is one byte. *See also* byte.

board: A circuit board. An internal card containing electronic components, called chips, which perform a specific function or increase the capabilities of the system.

boot: Short for bootstrap. A program that starts or restarts the computer. The program reads instructions from a storage device into the computer's memory.

bps: Bits per second. Typically used to describe the data transmission speed of a modem.

buffer: The portion of the computer's memory where data is temporarily stored. Buffers often compensate for differences in the rate of flow from one device to another.

bus: An interface for transmission of signals, data or electric power.

byte: The representation of a single character. A sequence of eight bits treated as a single unit; also the smallest addressable unit within the system.

C

cache memory: High speed memory which stores data that increases processor speed and data transfer rate. When the CPU reads data from main memory, it stores a copy of this data in cache memory. The next time the CPU needs that same data, it looks for it in the cache memory rather than the main memory, which saves time. The computer has two cache levels. Level one is incorporated into the processor and level two resides in external memory.

capacity: The amount of data that can be stored on a magnetic storage device such as a diskette (floppy disk) or hard disk. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes and megabytes (MB), where one MB = 1024 KB.

card: Synonym for board. *See* board.

CardBus: An industry standard bus for 32-bit PC cards.

CD-ROM: A Compact Disk-Read Only Memory is a high capacity disk that can be read from but not written to. The CD-ROM drive uses a laser, rather than magnetic heads, to read data from the disk.

CD-R: A Compact Disk-Recordable disk can be written once and read many times. See also CD-ROM.

CD-RW: A Compact Disk-Read/Write disk can be rewritten many times. *See* also CD-ROM.

character: Any letter, number, punctuation mark, or symbol used by the computer. Also synonymous with byte.

chassis: The frame containing the computer.

chip: A small semiconductor containing computer logic and circuitry for processing, memory, input/output functions and controlling other chips.

CMOS: Complementary Metal-Oxide Semiconductor. An electronic circuit fabricated on a silicon wafer that requires very little power. Integrated circuits implemented in CMOS technology can be tightly packaged and are highly reliable.

cold start: Starting a computer that is currently off (turning on the power).

COM1, COM2, COM3 and COM4: The names assigned to the serial and communication ports.

commands: Instructions you enter at the terminal keyboard that direct the actions of the computer or its peripheral devices.

communications: The means by which a computer transmits and receives data to and from another computer or device. *See* parallel interface; serial interface.

compatibility: 1) The ability of one computer to accept and process data in the same manner as another computer without modifying the data or the media upon which it is being transferred. 2) the ability of one device to connect to or communicate with another system or component.

components: Elements or parts (of a system) which make up the whole (system).

computer program: A set of instructions written for a computer that enable it to achieve a desired result.

computer system: A combination of hardware, software, firmware, and peripheral components assembled to process data into useful information.

configuration: The specific components in your system (such as the terminal, printer, and disk drives) and the settings that define how your system works. You use the HW Setup program to control your system configuration.

control keys: A key or sequence of keys you enter from the keyboard to initiate a particular function within a program.

controller: Built-in hardware and software that controls the functions of a specific internal or peripheral device (e.g. keyboard controller).

co-processor: A circuit built into the processor that is dedicated to intensive math calculations.

cPad: A pointing device integrated into the TOSHIBA computer palm rest.

CPS: Characters Per Second. Typically used to indicate the transmission speed of a printer.

CPU: Central Processing Unit. The portion of the computer that interprets and executes instructions.

CRT: Cathode Ray Tube. A vacuum tube in which beams projected on a fluorescent screen-producing luminous spots. An example is the television set.

cursor: A small, blinking rectangle or line that indicates the current position on the display screen.

D

data: Information that is factual, measurable or statistical that a computer can process, store, or retrieve.

data bits: A data communications parameter controlling the number of bits (binary digits) used to make up a byte. If data bits = 7 the computer can generate 128 unique characters. If data bits = 8 the computer can generate 256 unique characters.

DC: Direct Current. Electric current that flows in one direction. This type of power is usually supplied by batteries.

default: The parameter value automatically selected by the system when you or the program do not provide instructions. Also called a preset value.

delete: To remove data from a disk or other data storage device. Synonymous with erase.

device driver: A program that controls communication between a specific peripheral device and the computer. The CONFIG.SYS file contains device drivers that MS-DOS loads when you turn the computer on.

dialog box: A window that accepts user input to make system settings or record other information.

disk drive: The device that randomly accesses information on a disk and copies it to the computer's memory. It also writes data from memory to the disk. To accomplish these tasks, the unit physically rotates the disk at high speed past a read-write head.

disk storage: Storing data on magnetic disk. Data is arranged on concentric tracks much like a phonograph record.

diskette: A removable disk that stores magnetically encoded data. Also called a floppy disk.

display: A CRT, LCD, or other image producing device used to view computer output.

documentation: The set of manuals and/or other instructions written for the users of a computer system or application. Computer system documentation typically includes procedural and tutorial information as well as system functions.

DOS: Disk Operating System. *See* operating system.

driver: A software program, generally part of the operating system, that controls a specific piece of hardware (frequently a peripheral device such as a printer or mouse).

DVD-RAM: A Digital Versatile Disk Random Access Memory is a high-capacity, high performance disk that lets you store large volumes of data. The DVD-ROM drive uses a laser to read data from the disk.

DVD-ROM: A Digital Versatile Disk Read Only Memory is a high capacity, high performance disk suitable for play back of video and other high-density files. The DVD-ROM drive uses a laser to read data from the disk.

E

echo: To send back a reflection of the transmitted data to the sending device. You can display the information on the screen, or output it to the printer, or both. When a computer receives back data it transmitted to a CRT (or other peripheral device) and then retransmits the data to printer, the printer is said to echo the CRT.

erase: *See* delete.

escape: 1) A code (ASCII code 27), signaling the computer that what follows are commands; used with peripheral devices such as printers and modems. 2) A means of aborting the task currently in progress.

escape guard time: A time before and after an escape code is sent to the modem which distinguishes between escapes that are part of the transmitted data, and escapes that are intended as a command to the modem.

execute: To interpret and execute an instruction.

Extended Capability Port: An industry standard that provides a data buffer, switchable forward and reverse data transmission, and run length encoding (RLE) support.

F

fast infrared: An industry standard that enables cableless infrared serial data transfer at speeds of up to 4 Mbps.

file: A collection of related information; a file can contain data, programs, or both.

firmware: A set of instructions built into the hardware which controls and directs a microprocessor's activities.

fixed disk: *See* hard disk.

floppy disk: *See* diskette.

floppy disk drive (FDD): An electromechanical device that reads and writes to floppy disks. *See also* diskette.

Fn-esse: A TOSHIBA utility that lets you assign functions to hotkeys.

folder: An icon in Windows used to store documents or other folders.

format: The process of readying a blank disk for its first use. Formatting establishes the structure of the disk that the operating system expects before it writes files or programs onto the disk.

function keys: The keys labeled **F1** through **F12** that tell the computer to perform certain functions.

G

gigabyte (GB): A unit of data storage equal to 1024 megabytes. *See also* megabyte.

graphics: Drawings, pictures, or other images, such as charts or graphs, to present information.

H

hard disk: A non-removable disk usually referred to as drive C. The factory installs this disk and only a trained engineer can remove it for servicing. Also called fixed disk.

hard disk drive (HDD): An electromechanical device that reads and writes a hard disk. *See also* hard disk.

hardware: The physical electronic and mechanical components of a computer system: typically, the computer itself, external disk drives, etc. *See also* software and firmware.

hertz: A unit of wave frequency that equals one cycle per second.

hexadecimal: The base 16 numbering system composed of the digits 0 through 9 and the letters A, B, C, D, E, and F.

host computer: The computer that controls, regulates, and transmits information to a device or another computer.

hotkey: The computer's feature in which certain keys in combination with the extended function key, **Fn**, can be used to set system parameters, such as speaker volume.

HW Setup: A TOSHIBA utility that lets you set the parameters for various hardware components.

I

icon: A small graphic image displayed on the screen or in the indicator panel. In Windows, an icon represents an object that the user can manipulate.

i.LINK (IEEE1394): This port enables high-speed data transfer directly from external devices such as digital video cameras.

infrared port: A cableless communications port capable of using infrared signals to send serial data.

input: The data or instructions you provide to a computer, communication device or other peripheral device from the keyboard or external or internal storage devices. The data sent (or output) by the sending computer is input for the receiving computer.

instruction: Statements or commands that specify how to perform a particular task.

interface: 1) Hardware and/or software components of a system used specifically to connect one system or device to another. 2) To physically connect one system or device to another to exchange information. 3) The point of contact between user, the computer, and the program, for example, the keyboard or a menu.

interrupt request: A signal that gives a component access to the processor.

I/O: Input/output. Refers to acceptance and transfer of data to and from a computer.

I/O devices: Equipment used to communicate with the computer and transfer data to and from it.

IrDA 1.1: An industry standard that enables cableless infrared serial data transfer at speeds of up to 4 Mbps.

J

jumper: A small clip or wire that allows you to change the hardware characteristics by electrically connecting two points of a circuit.

K

K: Taken from the Greek word kilo, meaning 1000; often used as equivalent to 1024, or 2 raised to the 10th power. *See also* byte and kilobyte.

KB: *See* kilobyte.

keyboard: An input device containing switches that are activated by manually pressing marked keys. Each keystroke activates a switch that transmits a specific code to the computer. For each key, the transmitted code is, in turn, representative of the (ASCII) character marked on the key.

kilobyte (KB): A unit of data storage equal to 1024 bytes. *See also* byte and megabyte.

L

level 2 cache: *See* cache.

Light Emitting Diode (LED): A semiconductor device that emits light when a current is applied.

Liquid Crystal Display (LCD): Liquid crystal sealed between two sheets of glass coated with transparent conducting material. The viewing-side coating is etched into character forming segments with leads that extend to the edge of the glass. Applying a voltage between the glass sheets alters the brightness of the liquid crystal.

LSI: Large Scale Integration. 1) A technology that allows the inclusion of up to 100,000 simple logic gates on a single chip. 2) An integrated circuit that uses large scale integration.

M

main board: *See* motherboard.

megabyte (MB): A unit of data storage equal to 1024 kilobytes. *See also* kilobyte.

megahertz: A unit of wave frequency that equals 1 million cycles per second. *See also* hertz.

menu: A software interface that displays a list of options on the screen. Also called a screen.

microprocessor: A hardware component contained in a single integrated circuit that carries out instructions. Also called the central processing unit (CPU), one of the main parts of the computer.

mode: A method of operation, for example, the boot mode, standby mode or the hibernation mode.

modem: Derived from modulator/demodulator, a device that converts (modulates) digital data for transmission over telephone lines and then converts modulated data (demodulates) to digital format where received.

monitor: A device that uses rows and columns of pixels to display alphanumeric characters or graphic images. *See also* CRT.

motherboard: A name sometimes used to refer to the main printed circuit board in processing equipment. It usually contains integrated circuits that perform the processor's basic functions and provides connectors for adding other boards that perform special functions. Sometimes called a main board.

MP3: An audio compression standard that enables high-quality transmission and real-time playback of sound files.

N

non-system disk: A formatted diskette (floppy disk) you can use to store programs and data but you cannot use to start the computer. *See* system disk.

nonvolatile memory: Memory, usually read-only (ROM), that is capable of permanently storing information. Turning the computer's power off does not alter data stored in nonvolatile memory.

numeric keypad overlay: A feature that allows you to use certain keys on the keyboard to perform numeric entry, or to control cursor and page movement.

O

OCR: Optical Character Recognition (reader). A technique or device that uses laser or visible light to identify characters and input them into a storage device.

online state: A functional state of a peripheral device when it is ready to receive or transmit data.

operating system: A group of programs that controls the basic operation of a computer. Operating system functions include interpreting programs, creating data files, and controlling the transmission and receipt (input/output) of data to and from memory and peripheral devices.

output: The results of a computer operation. Output commonly indicates data 1) printed on paper, 2) displayed at a terminal, 3) sent through the serial port of internal modem, or 4) stored on some magnetic media.

P

parallel interface: Refers to a type of information exchange that transmits information one byte (8 bits) at a time. *See also* serial interface.

parity: 1) The symmetrical relationship between two parameter values (integers) both of which are either on or off; odd or even; 0 or 1. 2) In serial communications, an error detection bit that is added to a group of data bits making the sum of the bits even or odd. Parity can be set to none, odd, or even.

password: A unique string of characters used to identify a specific user. The computer provides various levels of password protection such as user, supervisor and eject.

pel: The smallest area of the display that can be addressed by software. Equal in size to a pixel or group of pixels. *See* pixel.

peripheral component interconnect: An industry standard 32-bit bus.

peripheral device: An I/O device that is external to the central processor and/or main memory such as a printer or a mouse.

pixel: A picture element. The smallest dot that can be made on a display or printer. Also called a pel.

plug and play: A capability with Windows that enables the system to automatically recognize connections of external devices and make the necessary configurations in the computer.

port: The electrical connection through which the computer sends and receives data to and from devices or other computers.

Power Saver Utility: A TOSHIBA utility that lets you set the parameters for various power-saving functions.

printed circuit board (PCB): A hardware component of a processor to which integrated circuits and other components are attached. The board itself is typically flat and rectangular, and constructed of fiberglass, to form the attachment surface.

program: A set of instructions a computer can execute that enables it to achieve a desired result. *See also* application.

prompt: A message the computer provides indicating it is ready for or requires information or an action from you.

R

Radio frequency interference (RFI) shield: A metal shield enclosing the printed circuit boards of the printer or computer to prevent radio and TV interference. All computer equipment generates radio frequency signals. The FCC regulates the amount of signals a computing device can allow past its shielding. A Class A device is sufficient for office use. Class B provides a more stringent classification for home equipment use. TOSHIBA portable computers comply with Class B computing device regulations.

Random Access Memory (RAM): High speed memory within the computer circuitry that can be read or written to.

restart: Resetting a computer without turning it off (also called “warm boot” or “soft reset”). *See also* boot.

RGB: Red, green, and blue. A device that uses three input signals, each activating an electron gun for a primary additive color (red, green, and blue) or port for using such a device. *See also* CRT.

RJ11: A modular telephone jack.

RJ45: A modular LAN jack.

ROM: Read Only Memory**:** A nonvolatile memory chip manufactured to contain information that controls the computer's basic operation. You cannot access or change information stored in ROM.

S

SCSI: Small Computer System Interface is an industry standard interface for connection of a variety of peripheral devices.

SD cards: Secure Digital cards are flash memory widely used in a variety of digital devices such as digital cameras and Personal Digital Assistants.

serial communications: A communications technique that uses as few as two interconnecting wires to send bits one after another.

serial interface: Refers to a type of information exchange that transmits information sequentially, one bit at a time. Contrast: Parallel interface.

SIO: Serial Input/Output. The electronic methodology used in serial data transmission.

SmartMedia: Write-protectable, flash-memory cards that are used in a variety of external devices such as digital cameras. They come in either 3.3 or 5 volt models.

soft key: Key combinations that emulate keys on the IBM keyboard, change some configuration options, stop program execution, and access the numeric keypad overlay.

software: The set of programs, procedures and related documentation associated with a computer system. Specifically refers to computer programs that direct and control the computer system's activities. *See also* hardware.

stop bit: One or more bits of a byte that follow the transmitted character or group codes in asynchronous serial communications.

subpixel: Three elements, one red, one green and blue (RGB), that make up a pixel on the color LCD. The computer sets subpixels independently, each may emit a different degree of brightness. *See also* pixel.

synchronous: Having a constant time interval between successive bits, characters or events.

system disk: A disk that has been formatted with an operating system. For MS-DOS the operating system is contained in two hidden files and the COMMAND.COM file. You can boot a computer using a system disk. Also called an operating system disk.

T

terminal: A typewriter-like keyboard and CRT display screen connected to the computer for data input/output.

TFT: Transistor-transistor logic. A logic circuit design that uses switching transistors for gates and storage.

TouchPad: A pointing device integrated into the TOSHIBA computer palm rest.

TTL: Transistor-transistor logic. A logic circuit design that uses switching transistors for gates and storage.

U

Universal Serial Bus: This serial interface lets you communicate with several devices connected in a chain to a single port on the computer.

V

VGA: Video Graphics Array is an industry standard video adaptor that lets you run any popular software.

volatile memory: Random access memory (RAM) that stores information as long as power is supplied to the computer.

W

warm start: Restarting or resetting a computer without turning it off.

window: A portion of the screen that can display its own application, document or dialog box. Often used to mean a Microsoft Windows window.

write protection: A method for protecting a diskette (floppy disk) from accidental erasure.

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